MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM

Sixty-first Steering Committee Meeting

AGENDA

DATE: Tuesday, November 2, 2004

TIME: 9:00 A.M.

PLACE: Milwaukee County Courthouse
Room 203P
901 North Ninth Street
Milwaukee, Wisconsin

I. Roll Call

II. Meeting Minutes

Consideration of the minutes of the 60th Steering Committee meeting held on September 14, 2004 (copy of minutes enclosed).

III. Reports

A. Report by project staff on the status of the MCAMLIS Floodland Mapping Projects (copies of two memoranda mailed on 10/27/04).

B. Report by Milwaukee County Register of Deeds staff on MCAMLIS street address file and cadastral map maintenance operations (copies of two status maps mailed on 10/27/04).

C. Report by City of Milwaukee staff on the status of Milwaukee cadastral map transformation projects (copy of report and status map mailed on 10/27/04).

D. License Agreements executed on behalf of the Utilities Subcommittee (copy of table of executed license agreements mailed on 10/27/04).

E. Status of MCAMLIS cash flow (copy of cash flow table for September 30, 2004 enclosed). line item for interest gains to be reflect

F. Report by project staff on the review of the MCAMLIS project 2005 budget request (copy of County Executive's budget request mailed on 10/27/04).

IV. Old Business

A. Report on the October 19, 2004, meeting of the Subcommittee on Topographic Mapping and consideration of a proposed four-year program to update older digital topographic mapping in Milwaukee County (a copy of the Subcommittee meeting minutes, a copy of a revised Subcommittee Report and Recommendations and a copy of a revised memorandum enclosed).

B. Review and adoption of technical specifications set forth in the Milwaukee County GIS Database Design Project: Requirements and Design Document (report copy distributed previously for September 14, 2004, meeting).

C. Appointment of a Subcommittee to review and make recommendations concerning potential future changes to the structure of the MCAMLIS Steering Committee as set forth in the Milwaukee County GIS Database Design Project: GIS Situation Assessment and Conceptual Design Report (report copy distributed previously for September 14, 2004, meeting).

VI. New Business

A. Consideration of a Proposal for a Cooperative Project with Digger's Hotline (copy of proposal mailed on 10/27/04).

B. Consideration of a Project Management Services Agreement for 2005 between the Steering Committee and the Milwaukee County Department of Parks and Public Infrastructure (copy of proposed Agreement mailed on 10/27/04).

C. Consideration of an Administrative Services Support Agreement between the Steering Committee and the Milwaukee County Department of Administrative Services (copy of proposed Agreement enclosed).

D. Consideration of an Agreement between the Steering Committee and the SEWRPC for the provision of 2005 professional services as the Milwaukee County Surveyor (copy of proposed Agreement mailed on 10/27/04).

E. Appointment of a Nominating Committee for the election of MCAMLIS Steering Committee officers for 2005.

VII. Correspondence

A. E-mail communication received from Mr. William Shaw (edited copy enclosed).

VIII. Date, time, and place of next meeting

IX. Adjournment

Kurt W. Bauer
Chairman

11/16/04
9:00 AM

B/TDP/lgh/lw/mlh
417 v1 - mcamlis agenda-59th mtg

MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM

Sixty-second Steering Committee Meeting

AGENDA

DATE: Tuesday, November 16, 2004

TIME: 9:00 A.M.

PLACE: Milwaukee County Courthouse
Room 203P
901 North Ninth Street
Milwaukee, Wisconsin

I. Roll Call

II. Meeting Minutes

A. Consideration of the minutes of the 60th Steering Committee meeting held on September 14, 2004 (copy of minutes to be mailed prior to meeting). appr.

B. Consideration of the minutes of the 61st Steering Committee meeting held on November 2, 2004 (copy of minutes enclosed). appr.

III. Reports

A. License Agreements executed on behalf of the Utilities Subcommittee (copy of table of executed license agreements enclosed).

B. Status of MCAMLIS cash flow (copy of cash flow table for October 31, 2004 will be distributed at meeting). Consideration of an interest bearing TRUST account.

C. Report by project staff on the review of the MCAMLIS project 2005 budget request. County Bd amendment discussed

IV. Old Business

A. Report by utility representatives on review of technical specifications set forth in the Milwaukee County GIS Database Design Project: Requirements and Design Document (document copy distributed previously for September 14, 2004, meeting). appr.

V. New Business

A. Consideration of a Proposal for a Cooperative Project with Digger's Hotline (copy of proposal distributed previously for November 2, 2004, meeting). appr.

B. Consideration of an Administrative Services Support Agreement between the Steering Committee and the Milwaukee County Department of Administrative Services (copy of proposed Agreement enclosed). appr.

C. Consideration of a Project Management Services Agreement for 2005 between the Steering Committee and the Milwaukee County Department of Parks and Public Infrastructure (copy of proposed Agreement distributed previously for November 2, 2004, meeting). appr.

D. Consideration of an Agreement between the Steering Committee and the SEWRPC for the provision of 2005 professional services as the Milwaukee County Surveyor (copy of proposed Agreement distributed previously for November 2, 2004, meeting). appr.

E. Appointment of a Nominating Committee for the election of MCAMLIS Steering Committee officers for 2005. - Bennett - Nigh - Utilities

VI. Correspondence

✓A. E-mail communication received from Mr. William Shaw (edited copy distributed previously for November 2, 2004, meeting).

VII. Special Order of Business

A. Discussion of potential future changes to the structure of the MCAMLIS Steering Committee as set forth in the Milwaukee County GIS Database Design Project: GIS Situation Assessment and Conceptual Design Report (report copy distributed previously for September 14, 2004, meeting).

VIII. Date, time, and place of next meeting

IX. Adjournment

Kurt W. Bauer
Chairman

KWB/TDP/lgh
#101488 V1 - Mcamlis Agenda - 62nd Mtg.

next meeting 12/14/04

3A.

EXECUTED LICENSE AGREEMENTS

Number of Executed Agreements		Licensee	Effective Date
Since 1995	For 2003	**2003**	
90.	1.	North Shore Fire Department	1/13/03
91.	2	Planning & Design Institute, Inc.	2/6/03
92.	3.	Nancy M. Aten	2/12/03
93.	4.	Graef, Anhalt, Schloemer and Associates, Inc.	4/2/03
94.	5.	Sandridge Commercial Real Estate, LLC	4/25/03
95.	6.	Bloom Consultants LLC	7/11/03
96.	7.	Landscape Architects, Inc.	7/22/03
97.	8.	Jenkins Survey and Design, Inc.	7/23/03
98.	9.	Access Engineering LLC	7/30/03
99.	10.	Fifth Ward Association	12/08/03
100.	11.	West Allis-West Milwaukee School District	12/10/03
Since 1995	For 2004	**2004**	
101.	1.	The Sigma Group	01/21/02
102.	2.	T N & Associates	02/20/04
103.	3.	Hayes Engineering Company	02/23/04
104.	4.	Geocomm	03/30/04
105.	5.	J. Spear Associates, Inc.	06/16/04
106.	6.	Key Engineering Group, Ltd.	07/21/04
107.	7.	LandCraft Survey and Engineering, Inc.	08/26/04
108.	8.	The Design Office	10/06/04
109.	9.	Friebert, Finerty & St. John, S.C.	10/26/04
110.	10.	Hiller Consulting, LLC	10/28/04

3B.

MCAMLIS FINANCIAL REPORT
(ADJUSTED FOR ENCUMBRANCE)

	1990 Actual	1991 Actual	1992 Actual	1993 Actual	1994 Actual	1995 Actual	1996 Actual	1997 Actual	1998 Actual	1999 Actual	2000 Actual	2001 Actual	2002 Actual	2003 Actual	10/31/2004 Actual	TOTAL
Beginning Period Reserve-January 1	0	283,340	595,922	695,124	952,054	1,990,280	1,339,649	1,415,929	1,532,289	1,943,499	2,288,015	2,130,541	2,336,378	2,748,988	3,783,878	3,783,878
Mid-Year Reserve Changes	0	0	0	0	0	0	0	0	0	0	0	0				0
Current Period Reserve	0	283,340	595,922	695,124	952,054	1,990,280	1,339,649	1,415,929	1,532,289	1,943,499	2,288,015	2,130,541	2,336,378	2,748,988	3,783,878	3,783,878
Recording Fees (**$4.00** Portion)	101,886	324,983	612,592	676,093	647,355	503,342	574,328	644,508	769,820	773,078	609,683	743,977	918,012	1,178,762	695,780	9,774,199
Recording Fees (**$1.00** Portion)												72,968	230,597	295,988	148,442	747,995
State Grants	0	0	0	150,000	200,000	165,000	138,500	55,300	139,226	152,270	103,895	325,997	197,979	223,055	34,136	1,885,358
1 Private Utility Contributions	312,000	312,000	312,000	312,000	312,000	0	0	0	0	0	0	0				1,560,000
2 MMSD Contribution	0	0	0	50,000	50,000	50,000	50,000	50,000	50,000	50,000	170,000	0				520,000
Annual Revenue	413,886	636,983	924,592	1,188,093	1,209,355	718,342	762,828	749,808	959,046	975,348	883,578	1,142,942	1,346,588	1,697,805	878,358	14,487,552
TOTAL FUNDS AVAILABLE	413,886	920,323	1,520,514	1,883,217	2,161,409	2,708,622	2,102,477	2,165,737	2,491,335	2,918,847	3,171,593	3,273,483	3,682,966	4,446,793	4,662,236	18,271,430
Additional Encumbrance	100,000	22,075	534,849	272,943	-900,864	112,067	308,902	367,776	361,580	386,754	586,545	737,559	577,619	375,752	382,682	4,226,239
Less Prior Year Additional Encumbrance		-100,000	-22,075	-534,849	-272,943	900,864	-112,067	-308,902	-367,776	-361,580	-386,754	-586,545	-737,559	-577,619	-375,752	-3,843,556
Legal Fees	0	350	600	0	0	0	0	0	0	0	0	0				950
Systems Consulting (UGC)	0	128,638	0	0	0	0	0	0	0	0	0	0				128,638
USPLS Remonumentation	0	41,260	0	0	0	0	0	0	0	0	0	0				41,260
Horizontal/Vertical Control Surveys	0	144,443	0	0	0	0	0	0	0	0	0	0				144,443
Aerial Photos/Mapping	21,555	17,925	292,060	1,178,794	1,340,370	356,953	490,821	576,268	556,108	608,450	842,594	787,620	1,095,708	866,757	461,130	9,493,112
Project Facilitator	8,991	73,567	21,650	14,995	0	0	0	0	0	0	0	0				119,203
Conference	0	59	1,046	319	0	0	528	0	0	0	0	0				1,953
RoD Computer Hardware/Software																0
RoD Materials Copied	0	0	0	0	6,291	797	0	0	0	0	0	0				7,088
Computer Maintenance																0
Computer/Office Supplies	0	0	0	0	0	0	26	0	0	0	0	0				26
DPW Needs Analysis																
IMSD Strategic Initiative																
Contractual Crosscharges	40	554	13	0	0	0	3	5	0	0	343	0	442	0		1,399
Charges Paid By Other Departments	0	-4,470	-2,752	-1,040	-1,724	-1,708	-1,664	-1,700	-2,116	-2,792	-1,676	-1,529	-2,232	-1,975	-1,030	-28,408
Miscellaneous									40	0	0	0				40
Annual Expenditures	30,586	402,326	312,616	1,193,069	1,344,936	356,042	489,713	574,573	554,032	605,658	841,261	786,091	1,093,918	864,782	460,100	9,909,704
TOTAL EXPS / ENCUMBRANCES	130,586	324,401	825,391	931,162	171,130	1,368,973	686,548	633,448	547,836	630,832	1,041,052	937,105	933,978	662,915	467,030	14,135,943
NET AVAIL FUNDS (END RESERVE)	283,300	595,922	695,124	952,054	1,990,280	1,339,649	1,415,929	1,532,289	1,943,499	2,288,015	2,130,541	2,336,378	2,748,988	3,783,878	4,195,206	4,135,487

1. 1994 was the final year for this revenue source.
2. $50,000 will be paid each year through 2000, and $20,000 in 2003.

Prepared by Milwaukee County
DAS-Fiscal Affairs
As of 10/31/04

3B.

MCAMLIS Outstanding Commitments

Description	2004 Outstanding Commitments	Remaining MCAMLIS Reserve Balance[1]
		4,195,206
Register of Deeds Computer Equipment[2]	435,840	3,759,366
SEWRPC Water Study	87,262	3,672,104
Topographic Mapping Project	3,140,505	531,599
Digger's Hotline Study[3]	75,000	456,599
Total Projected 2004 Ending Balance		**456,599**

Description	2005 Outstanding Commitments	Remaining MCAMLIS Reserve Balance[4]
		1,410,599
MCAMLIS Floodland Mapping Phase 2 [5]	145,300	1,265,299
County A&E Project Management/ROD staff person[3]	280,284	985,015
Register of Deeds Real Estate Software	142,000	843,015
SEWRPC Water Study[6]	87,262	755,753
County Surveyor[3]	60,000	695,753
County Dept of Administrative Services Fiscal Management[3]	25,000	670,753
Miscellaneous	2,000	668,753
Total Projected 2005 Ending Balance		**668,753**

[1]As of 10/31/04, this is the balance remaining in the reserve. In terms of the 2004 budget, as of 11/5/04, $903,163 in revenue had been realized compared to budgeted revenue of $912,500. Of this amount, $100,000 was anticipated from the State but actual State revenue realized to date is only $34,136. Despite the State revenue shortfall, revenue actuals are close to budgeted revenue due to overrealized general recording fees. Final revenue numbers from the State are expected at the end of November.

[2]A total of $525,000 has been budgeted for this purpose but $89,160 has been spent leaving a remaining commitment of $435,840.

[3]This contract is subject to approval by the next MCAMLIS Committee scheduled for Nov. 16.

[4]This figure reflects the '04 projected year-end reserve balance & the '05 appropriation of $954,000 which includes $79,000 from the State. The remaining revenue of $875,000 reflects *anticipated* recording fee revenue for 2005. If the MCAMLIS budget experiences a revenue shortfall, funds will be drawn from the MCAMLIS reserve to make the budget whole.

[5] A final amount of $145,300 is anticipated for 2006 for a total contract of $436,000 budgeted over 2004-06.

[6] A final amount of $87,263 is anticipated for 2006.

Prepared by Milwaukee County
DAS-Fiscal Affairs
As of 10/31/2004

Calendar Entry:

Meeting

Subject:	#100625 v1 - MCAMLIS - Reschedule Mtg. [Virus checked] ['Watchdog': checked]	Location:	Courthouse room 203p
Begins:	Tue 11/16/2004 09:00 AM	Entry type:	Meeting
Ends:	Tue 11/16/2004 11:30 AM		
Chair:	Greg High/DPW/Milwaukee County		

Invitations already sent

To: Gary Drent/DPW/Milwaukee County@milwco, Kevin White/DPW/Milwaukee County@milwco
cc:

☐ Pencil In — Time will appear free to others.
☐ Mark Private — Others cannot see any details about this event.
☐ Notify me — Have Notes notify you before the event.
Categorize:

Description:

MINUTES OF THE 60th MEETING

Milwaukee County Automated Mapping and Land Information System
Steering Committee

DATE: September 14, 2004

TIME: 9:00 A.M.

PLACE: Milwaukee County Courthouse
Room 306
County Executive's Conference Room
901 North Ninth Street
Milwaukee, Wisconsin

Members Present

Kurt W. Bauer, Chairman	Milwaukee County Surveyor
John M. Bennett	City Engineer, City of Franklin, representing the Intergovernmental Coordination Council of Milwaukee County
Mary B. Dowdle	Design Area Manager – Milwaukee Metro North, SBC
Gregory G. High (representing Thomas Carlson)	Director, Architectural and Engineering Services, Milwaukee County Department of Parks and Public Infrastructure
John LaFave	Register of Deeds, Milwaukee County
Clare O'Brien	Fiscal and Management Analyst, Milwaukee County Department of Administrative Services
Nancy A. Olson	Enterprise Information Manager, Information and Technology Management Division, City of Milwaukee
John C. Place	Manager, Maps and Records, WeEnergies
William C. Shaw	Manager, Geographic Information Systems, WeEnergies

Members Absent

David S. Misun	Facilities Information Supervisor, Milwaukee Metropolitan Sewerage District

Guests and Staff Present

Kathleen A. Bach	GIS Technician, Register of Deeds Office, Milwaukee County
Gary E. Drent	Fiscal & Budget Manager, Architectural and Engineering Services, Milwaukee County Department of Parks and Public Infrastructure
Marcia G. Lindholm	Central Drafting and Records Manager, Infrastructure Services Division, City of Milwaukee
Reinhard B. Meihsner	Consultant, Spatial Data Solutions, Inc.
Thomas D. Patterson	MCAMLIS Project Manager
Scott Stocking	Systems Analyst, GeoAnalytics
Peter Thum	President, GeoAnalytics
Thomas J. Tym	Technology Services Department Head, Ruekert & Mielke, Inc.
Loretta Watson	SEWRPC Executive Secretary
Kevin R. White	GIS Supervisor, Department of Parks and Public Infrastructure, Milwaukee County

ROLL CALL

The 60th meeting of the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee was called to order by Chairman Bauer at 9:00 a.m. Roll call was taken by circulating an attendance signature sheet, and a quorum was declared present.

CONSIDERATION OF THE MINUTES OF THE 59TH STEERING COMMITTEE MEETING HELD ON JULY 20, 2004

Chairman Bauer noted that copies of the minutes of the 59th meeting of the Steering Committee held on July 20, 2004, had been distributed to all members of the Committee for review prior to the meeting and asked that the Committee consider those minutes.

There being no questions, comments, or corrections, on a motion by Mr. Shaw, seconded by Mr. Bennett, and carried unanimously, the minutes of the meeting of July 20, 2004, were approved as published.

REPORTS

License Agreements Executed on Behalf of the Utilities Subcommittee

Chairman Bauer noted that all members of the Steering Committee had received a copy of a table listing all of the license agreements governing the provision of MCAMLIS base maps and related data to users as executed from January 1, 2003, through August 31, 2004, for review prior to the meeting.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (a copy of the License Agreement table attached to these minutes).

Status Of MCAMLIS Cash Flow

Chairman Bauer noted that a copy of a table summarizing the status of the MCAMLIS program cash flow as of July 31, 2004, had been provided to all Committee members for review prior to the meeting. He then asked Ms. O'Brien to review the report with the Committee.

Following Ms. O'Brien's review of the report, Mr. Shaw asked if there had been any significant changes in net available funds since the report reviewed at the July 20th meeting. Chairman Bauer stated that the net available funds amount shown on the report in front of the Committee was roughly equal—about $4 million—to what had been reported at the July 20th meeting. Mr. Place, after noting that the magnitude of the net available funds reported at the July 20th meeting had been far greater than the amount reported at any previous Committee meetings, asked if the correct amount of these net available funds had always been evident, but not reported. Chairman Bauer replied that neither the Milwaukee County Department of Administrative Services, Mr. Patterson, nor the Steering Committee had known the correct amount of the net available funds prior to the previous meeting due to previously discovered errors in the computer program that calculated and reported the net available funds. Chairman Bauer stated that Mr. Lewandowski of the Milwaukee County Administrative Services Department, formerly a member of the Steering Committee, and Mr. Patterson had discovered the error at the end of 2003 and had corrected the error during the early part of 2004.

Mr. Patterson noted that an amount of approximately $500,000 had been previously approved by the Steering Committee for use by the Register of Deed's Office. This encumbered amount, he noted, was not reflected in the current table. Mr. Shaw then asked if it was correct to assume that there was about $3.5 million of net available funds that could be used by the Steering Committee. Mr. Patterson reported that that was indeed the case.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (a copy of the table setting forth the MCAMLIS cash flow status as of July 31, 2004, is attached to these minutes).

OLD BUSINESS

Report on the August 13, 2004 and the September 2, 2004 Meetings of the Subcommittee on Topographic Mapping and Consideration of a Proposed Four-Year Program to Update All Digital Topographic Mapping in Milwaukee County

Chairman Bauer noted that copies of a memorandum setting forth a proposed four year program to update the existing digital topographic mapping in Milwaukee County had been provided to Steering Committee members for review prior to the July 20th Steering Committee meeting. Chairman Bauer further noted that following a lengthy discussion concerning the proposal at that meeting, he had been asked to appoint and convene a Subcommittee to evaluate the proposal and to provide counsel on the proposed mapping program to the Steering Committee. Chairman Bauer reported that he had, following the July 20th Committee meeting, appointed a MCAMLIS Subcommittee on Topographic Mapping and that he had notified the Steering Committee of his appointments in a Memorandum dated July 30, 2004 (a copy of the memorandum is attached to these minutes).

Chairman Bauer then asked Mr. Patterson to review the salient points of the original proposal with the Committee (a copy of the memorandum is attached to these minutes).

Mr. Patterson stated that in spite of the Steering Committee's long standing desire to replace the older digital topographic mapping within Milwaukee County, the lack of funding to carry this out had prevented the initiation of such a program. Mr. Patterson further stated that the discovery at the end of 2003 of an amount in excess of $3,000,000 in previously unreported, MCAMLIS program reserve funds now made initiation of a replacement digital topographic mapping program feasible. Mr. Patterson stated that increasingly the comments received from users of these maps indicated that the continually advancing age of the topographic mapping adversely affects the utility of these maps for these users. Mr. Patterson noted that this work element had previously been approved, pending the identification of funding, by the Steering Committee as part of the MCAMLIS Strategic Assessment adopted by the Committee at its meeting held on June 10, 2003.

Mr. Patterson pointed out that a proposed program for the replacement of the older Milwaukee County digital topographic mapping was set forth in the table on page 2 of the memorandum and was also delineated on the map attached to the memorandum as Map 2. He noted that the two most recently completed digital topographic mapping projects carried out by the MCAMLIS Program: the 1999 Cudahy - St. Francis - South Milwaukee - General Mitchell International Airport mapping project; and the 2002 Lincoln Creek mapping project were both relatively recent and were not included in the replacement mapping program.

Mr. Patterson stated that the estimated cost to carry out this program is approximately $2,700,000 which was recommended to be spread over a four year period as set forth in the table on page 2 of the

memorandum. Mr. Patterson further stated that project staff were recommending that this program be funded through the use of the previously unreported reserve funds which were estimated to total about $3,784,000 as of December 31, 2003.

Chairman Bauer then noted that minutes from the Subcommittee meetings of August 13 and September 2, 2004; a copy of a letter from the United States Geological Survey (USGS) concerning the suitability of the MCAMLIS digital topographic base maps for inclusion in The National Map; and the Report and Recommendations of the Subcommittee to the Steering Committee had been provided to all Committee members for review prior to the meeting (a copy of each of these four documents is attached to these minutes) and asked Mr. Patterson to review the salient points of these four documents with the Committee.

Mr. Patterson stated that the August 13 and September 2, 2004 minutes of the Subcommittee on Topographic Mapping were being provided to the Committee as background summarizing the discussions and deliberations that had taken place at the Subcommittee meetings and that he would not review these documents with the Committee in the absence of specific questions. He further stated that the copy of the letter from the USGS concerning the suitability of the MCAMLIS digital topographic base maps for inclusion in The National Map was being provided to the Committee in response to the questions raised at the July 20th Committee meeting concerning whether or not the MCAMLIS maps would indeed meet specifications for inclusion in The National Map. He called the Committee's attention to a statement made by the USGS representative that the MCAMLIS digital topographic maps would indeed be eligible for inclusion in The National Map.

Mr. Patterson then reviewed the report and recommendations to the Steering Committee of the MCAMLIS Subcommittee on Digital Topographic Mapping noting in particular the principle recommendation of the Subcommittee that the MCAMLIS Replacement Digital Topographic Mapping Program should proceed. Also, Mr. Patterson noted, the Subcommittee had concluded that the map accuracy specifications currently contained in the proposed MCAMLIS digital topographic mapping specifications continue to meet the requirements for such mapping in Milwaukee County and should be retained.

Mr. Patterson further reported that the Subcommittee further recommended that a six-inch pixel, color, digital orthophotography layer be included as an additional product to be obtained within the MCAMLIS Replacement Digital Topographic Mapping Program. Mr. Patterson continued his report by noting that the Subcommittee had recommended that the current requirement in the proposed specifications calling for the delivery of the topographic maps in a U.S. Public Land Survey one-quarter section "map sheet" format be revised to provide for delivery of the digital topographic mapping as a "seamless map" product and, further, that the current requirements relating to the preparation of U.S. Public Land Survey oriented one-quarter section "map sheets" and the delivery of "hard copy" maps be deleted from the current specifications.

Mr. Patterson then reported that the Subcommittee believed that three issues given to it for consideration required further review prior to the initiation of a topographic map replacement effort: more specifically, these three items were; 1) whether or not the digital point, line, and area features contained in the proposed project specifications should continue to be mapped as interpreted, symbolized, and annotated features in light of the recommended incorporation of a digital orthophotography layer into the MCAMLIS digital topographic map replacement program; 2) whether or not the requirement in the proposed specifications that delivery of the digital map products from the contractor in Intergraph/MicroStation DGN format should be continued in view of emerging computer software

environments incorporating geodatabases; and, 3) the determination of the useful life of the topographic mapping such that a suitable map replacement cycle could be determined and recommended to the Steering Committee for use in formulating future MCAMLIS annual work programs.

Mr. Patterson noted that in identifying these three items for further review, the Subcommittee cited the lack of experience of the Subcommittee members in utilizing the MCAMLIS digital topographic maps in a "hands on" manner and the Subcommittee's belief that these issues could be better evaluated by individuals who use the maps in a more day-to-day manner. Accordingly, the Subcommittee had recommended to the Steering Committee that the Committee convene an additional Subcommittee or work group of more technologically based digital map users to further discuss these issues. Finally, Mr. Patterson again noted that the Subcommittee had recommended that the replacement digital topographic mapping program not be initiated until these more user oriented issues had been addressed.

Chairman Bauer noted that based upon the recommendations of the MCAMLIS Subcommittee on Topographic Mapping, it would appear that it might not be feasible for the Steering Committee to proceed with a Replacement Digital Topographic Mapping Program until an additional Subcommittee reviewed the issues, including map feature content, iterated by the original Subcommittee. He noted further that the Steering Committee would further discuss a proposal later in the meeting to transfer project management responsibilities to the Milwaukee County Department of Parks and Public Infrastructure. He then noted that in fairness to the new project manager, the appointment of this new Subcommittee should perhaps more properly be the responsibility of the new project manager.

Mr. Shaw stated that he did not see why the appointment of a technical Subcommittee could not proceed prior to the transfer of management responsibilities for the MCAMLIS Program. Following a short discussion it was the consensus of the Steering Committee that Chairman Bauer augment the composition of the current Subcommittee on Topographic Mapping to include additional people with "hands-on" experience in the use of the MCAMLIS digital topographic mapping files and that the augmented Subcommittee be asked to reconvene to address the points left unanswered in the original Subcommittee report.

[Secretary's Note: Shortly after this Committee meeting, Chairman Bauer appointed three additional individuals to the MCAMLIS Subcommittee on Topographic Mapping: Ms. Alissa A. Bails, AICP, GIS Division Manager, R.A. Smith & Associates, Inc.; Mr. Thomas J. Tym, Head, Technology Services Department, Ruekert & Mielke, Inc.; and Mr. Richard S. Vraga, Liaison for Wisconsin and Illinois, United States Geological Survey. Mr. Timothy R. Bate, P.E., Chairman of the Subcommittee was then asked to reconvene the augmented Subcommittee to further review and discuss the three issues identified in the Subcommittee's report to the Steering Committee.]

Consideration of a Proposal To Participate in a Regional Water Supply Study

Chairman Bauer noted that copies of a memorandum containing a proposal for the MCAMLIS Program to participate in a Regional Water System Supply Study had been provided to all Committee members for review prior to the meeting. He further noted that this proposal had appeared on the Agenda of the July 20th Steering Committee meeting but that discussion of the proposal had been held over at the request of SEWRPC Executive Director. He then asked Mr. Patterson to review the memorandum with the Committee.

Mr. Patterson stated that the SEWRPC, at the request of several of its constituent counties and municipalities, had undertaken a preliminary analysis and issued a document, *Regional Water Supply Planning Prospectus*, in September of 2002 setting forth the need for the preparation of a Regional Water Supply System Plan for the Southeastern Wisconsin Region including Milwaukee County.

Mr. Patterson further stated that the recently enacted Section 66.1001 of the *Wisconsin Statutes,* also known as the "Smart Growth" planning legislation, requires that the comprehensive plan for the development of a region, county, or local unit of government as adopted or amended under Section 66.0309 of the *Wisconsin Statutes* must consist of at least nine plan elements, two of which require the preparation of a Regional Water Supply System Plan. Meeting the letter of this new planning legislation will require that the Regional Planning Commission prepare a Water Supply Plan for the Southeastern Wisconsin Region. The statutes envision such a Regional Water Supply Plan as a framework plan within which county and municipal water supply planning can proceed in a sound and efficient manner.

Mr. Patterson further stated that there is subject matter overlap between the requirements of the Section 61.1001 legislation and the Wisconsin Land information Program. More specifically, overlap occurs in at least the content areas of housing; transportation; utilities and public infrastructure; agricultural and natural resources; land use; and intergovernmental cooperation. The public participation of Milwaukee County and the MCAMLIS Steering Committee in the preparation of the Water Supply Plan would also be responsive, in part, to the changing gubernatorial and legislative priorities manifested in recent biannual budgets as document recording fee collections are transferred from local land records modernization support to local comprehensive planning support.

Mr. Patterson further stated that at the meeting of the Regional Planning Commission held on March 20, 2003, the Regional Water Supply Planning Prospectus was approved and a funding formula recommending allocation of the study cost to the seven counties comprising the Southeastern Wisconsin Region on the basis of equalized property values was adopted. The funding formula is set forth in the table on page 3 of the memorandum. Under the provisions of this adopted funding formula, Milwaukee County would be asked to supply $261,787 over a three year period as its contribution toward completion of the Regional Water Supply Planning Program; or $87,262 annually. The seven counties, in caucusing with respect to the manner in which to fund the Regional Water Supply Planning program, determined that they did not want this planning effort funded in the traditional manner; that is, through the Commission's normal annual tax levy. Rather, through the Commission's normal tax levy representatives, the counties jointly determined that each county should examine its own resources and secure its share of the required funding from a source of its own choosing. With respect to Milwaukee County, County Executive Scott Walker had indicated, through his staff, that the Milwaukee County portion of the study's necessary funding should be provided through the MCAMLIS annual operating budget rather than through Milwaukee County tax levy funds.

Chairman Bauer asked if the Committee members had comments or questions concerning the recommendations set forth in the memorandum.

Ms. Olson stated that the City of Milwaukee and Mayor Barrett were opposed to using MCAMLIS funds to support a Regional Water Supply System Planning effort. Chairman Bauer responded that it was his understanding that the City was not opposed to the study, but only to the use of MCAMLIS funds to carry out the study.

Mr. High noted that, with respect to recent State biennial budgets transferring document recording fee receipts from the funding of land records modernization initiatives to the support of local comprehensive planning grants, a number of local governments had questioned whether or not it was appropriate or legal

to do this in light of other previously existing State statutes and administrative rules concerning the Wisconsin Land Information Program. He asked about the availability of these funds for local comprehensive planning support and further asked whether or not a schedule to begin distribution of such local comprehensive planning grants had been established. Mr. Patterson responded that he did not know of any schedule for these distributions, but that the funds referenced by Mr. High had indeed been transferred from local land records modernization support to local comprehensive planning support in the most recent State biennial budget.

Chairman Bauer stated that he was unaware of the availability of any grants for local comprehensive planning that were being funded from State general revenue sources. He did state that it was his understanding that distribution of these grants, supported from the document recording fee receipts, had already begun; that is, the state Department of Administration was providing grants for the so called Smart Growth planning efforts, Ozaukee County being one of the first recipients of such a grant. Chairman Bauer further noted that a water supply element is required under the "Smart Growth," or local comprehensive planning, legislation. He stated that the making of rational local plans outside of a framework of a Regional Water System Supply Study would be inefficient and would possibly result in contradictory findings and recommendations.

Mr. LaFave stated that he, like Ms. Olson, was also opposed to the use of MCAMLIS funds to support the Regional Water Supply System Planning Program citing the fact that there were currently several open staff positions in the Register of Deed's Office that could not be filled due to lack of adequate County funding support. Mr. LaFave further stated that he believed his responsibility to the citizens of Milwaukee County was to attempt to secure funding to maintain adequate service levels in the Register of Deed's office and that he believed that using the MCAMLIS funds to support a regional water supply planning work effort was inconsistent with that responsibility.

Mr. Bennett indicated that he supported both the planning effort and the use of MCAMLIS funds to provide the Milwaukee County portion of the study budget as set forth in the memorandum. Ms. Dowdle, Mr. Place, and Mr. Shaw indicated that their respective private utility organizations would take a position on this issue and that they would abstain if a vote were taken on this issue.

There being no further discussion, on a motion by Mr. High, seconded by Mr. Bennett, and carried by a 4-2 vote, the memorandum titled "Proposal for the MCAMLIS Program to Supply Partial Funding Support to Initiate the Regional Water Supply System Plan," dated July 12, 2004 (a copy of the memorandum is attached to these minutes) was approved by the Steering Committee and the project staff was directed to seek the execution of the Agreement attached to the memorandum by appropriate Commission and Steering Committee representatives; to secure the necessary review of the Agreement by the Milwaukee County Corporation Counsel, Risk Manager, and Disadvantaged Business Director; and to initiate the project set forth in the Agreement.

[Secretary's Note: Voting "yes" were Chairman Bauer, Mr. Bennett, Mr. High, and Ms. O'Brien. Voting "no" were Mr. LaFave and Ms. Olson. Ms. Dowdle, Mr. Place, and Mr. Shaw abstained.]

Review of the Status of the Milwaukee County GIS Needs Assessment

Chairman Bauer recalled that the Steering Committee, at the request of the then Milwaukee County Department of Public Works, now the Milwaukee County Department of Parks and Public Infrastructure, staff had, at its meeting of July 15, 2003, acted to table proposals for three MCAMLIS projects: the

conversion of the MCAMLIS digital cadastral maps to a seamless map environment; the development of a transactional map update capability for the resulting MCAMLIS cadastral map layer; and the extension of the MCAMLIS street address database to include the City of Milwaukee street address database. In taking these three actions, the Committee had also acted to request the Milwaukee County Department of Public Works staff to brief the Committee on the status of the creation of a County geodatabase as soon as the County staff was ready to present a cogent briefing regarding this issue.

Chairman Bauer further recalled that the Steering Committee had acted, also at its meeting on July 15, 2003, to provide up to $45,000 of MCAMLIS funding to the County Department of Public Works for the purpose of conducting a County GIS needs assessment. Finally, Chairman Bauer recalled that the Steering Committee had at its meeting on November 18, 2003, acted to provide an additional $70,000 of MCAMLIS funding, or a total of $115,000, to the Department of Public Works for the purpose of expanding this study to include the design of a County geodatabase.

Chairman Bauer noted that copies of two reports resulting from the County GIS needs assessment had been provided to all Committee members for review prior to the meeting. He then asked Mr. High to review the important points of the two documents with the Steering Committee.

[Secretary's Note: Due to their size, the two reports reviewed and discussed at this meeting are not attached to these minutes. Citations for these two reports are as follows: Milwaukee County GIS Database Design Project: GIS Situation Assessment and Conceptual Design Report, June 2004, prepared by GeoAnalytics for the Department of Parks and Public Infrastructure, Milwaukee County, Wisconsin; and Milwaukee County GIS Database Design Project: Requirement and Design Document, August 2004, prepared by GeoAnalytics for the Department of Parks and Public Infrastructure, Milwaukee County, Wisconsin.]

Mr. High reported that following approval of funding from the Steering Committee, the Department of Public Works (now Department of Parks and Public Infrastructure) staff had issued a request for proposals to carry out the GIS needs analysis and had convened a review panel including two members of the Steering Committee, Ms. Olson and Mr. Shaw, to assist in reviewing the submitted proposals. The process had led to the selection of GeoAnalytics to carry out the work. The result of that company's efforts were set forth in the two reports that had been provided to the Steering Committee for its review.

Mr. High then asked Mr. White to provide a general overview of the geodatabase model that had been developed as part of this study which Mr. White then proceeded to do with the assistance of several over-sized diagrams. At the conclusion of Mr. White's review, Mr. Bennett asked how sub-addresses would be handled by the proposed model. Mr. White responded that the ability to deal with sub-addresses had been built into the model but that the Department of Parks and Public Infrastructure (DPPI) staff had not decided at this point if they would use the sub-address capabilities. Mr. Bennett replied that based upon his experience in the City of Franklin he believed that sub-addressing was important and encouraged the county staff to operationalize this component of the model.

Mr. Shaw asked Mr. White if county staff had a full appreciation of the magnitude of work that would be needed to implement the proposed geodatabase model just reviewed. Mr. White responded by calling the Steering Committee's attention to the requirements and data migration section of the reports noting that the steps that needed to be taken had been set forth in that section. Mr. White stated that while there was significant work that would need to be accomplished, he did not believe that the project scope of work

constituted an unmanageable undertaking, noting further that most of the existing data ready to be loaded into the model was already in good condition. He further stated that the county staff's biggest concern was with the City of Milwaukee data noting in particular that the MCAMLIS cadastral maps covering the City were as much as five years old in certain areas and that the update of these maps would need to be pushed forward rapidly. Because of this, Mr. White stated that the county portion of the geodatabase model would be developed first with the City portion to follow.

Ms. Olson noted that the approximately 1000 individual maps that currently constituted the Milwaukee County tax mapping paper map system would no longer be printed on an annual basis; that is, the old traditional flat paper map page would cease to be issued although the data to do so would still be in existence.

Discussion of the Potential Transfer of MCAMLIS Program Management Responsibilities from SEWRPC to Milwaukee County

Chairman Bauer noted that Mr. White's presentation had not touched upon two issues critical to this Committee; this is, the future governance of the MCAMLIS program and the County's intentions with respect to assuming project management. Chairman Bauer noted in this regard, that the explicit expectation within the MCAMLIS Program since its beginning had always been that Milwaukee County would eventually assume management of the Program at some point. He further stated that both GeoAnalytics reports were vague with respect to the County's assumption of MCAMLIS Program management function and the future of the MCAMLIS Steering Committee.

Mr. High responded that the County believed that the change in project management could best be handled in an incremental fashion noting that the Steering Committee still had contractual obligations for this function with the SEWRPC through the end of 2004.

Chairman Bauer stated that SEWRPC had budgeted no funds for management of the MCAMLIS project after December 31, 2004. He further noted that within the next three months the Committee had to make a decision. The County should make a proposal to the Steering Committee about the transfer of the project management function and this should be done very soon. Mr. Bauer noted in this regard that DPPI had budgeted about $200,000 for 2005 to assume the MCAMLIS project management responsibilities.

Mr. Shaw stated that he agreed with Chairman Bauer concerning the vagueness of content of the two reports on these governance issues. He stated that it could not be assumed that taking management control of the program meant that the implementation of all activities identified in the reports would necessarily follow. Mr. High responded that it had never been intended that the reports provided by GeoAnalytics would deal directly with either the transfer of project management responsibilities from SEWRPC to Milwaukee County, or to a recommendation of potential changes of the structure of the MCAMLIS Steering Committee. The reports had been intended to deal with technical issues associated with designing and building a Countywide geodatabase. It had always been DPPI's intention to deal with project management issues and any associated structural changes in the MCAMLIS Steering Committee as separate issues.

Mr. High stated that the Steering Committee could have dealt with the project management issue as long as a year ago and could have even dealt with it separately before a geodatabase study was undertaken had it so chosen. Chairman Bauer responded that, in his opinion, the key issues to be discussed involve the project management transfer and the future role of the MCAMLIS Steering Committee and its

relationship to the internal county governance structure proposed in the reports. The GeoAnalytics reports deal largely with technical detail, rather than substantive issues.

Following additional lengthy discussion concerning these issues, on a motion by Mr. LeFave, seconded by Mr. High and carried unanimously, the Steering Committee acted to transfer project management responsibilities of the MCAMLIS Program to the Milwaukee County Department of Parks and Public Infrastructure effective January 1, 2005.

Chairman Bauer stated following the vote, that it would be desirable to have monthly Steering Committee meetings through the end of 2004, noting that significant issues needed to be addressed before that date. He suggested that Mr. Patterson meet with County staff to discuss details of the transition and that the County staff should begin to think about the issues left on the table, the most important one being will the present Steering Committee continue to function after January 1, 2005, as it has in the past. Chairman Bauer further suggested that the incoming project management staff would need to be prepared to make specific recommendations with respect to the projects set forth in the GeoAnalytics reports noting that he did not see specific recommendations contained in these reports and if they were contained, he did not believe that they were clearly articulated. More specifically, he stated that the incoming project management staff would need to distill the GeoAnalytics reports into a set of specific recommendations to be presented to the Steering Committee for its considerations.

Discussion of Potential Changes to the Structure of the MCAMLIS Steering Committee

While the previously noted discussion resulted in agreement among Steering Committee members concerning the transfer of project management functions from the SEWRPC to the Milwaukee County DPPI, the discussion did not result in resolution of the future role of the MCAMLIS Steering Committee following such a project management transition. The discussion did, however, result in the illumination of several key issues that would need to be discussed in this regard. Importantly among these issues are the relationship between the MCAMLIS Steering Committee and the internal County GIS Coordinating Committee proposed to be established in the GeoAnalytics reports and the change in the relationships, if any, between the MCAMLIS Program governance and the private utilities and local municipalities. Considerable comment during the discussion was related to these relationships.

Steering Committee members were of the opinion that the future role of the Steering Committee and its relationship with the other identified entities could probably best be worked out through establishment of a Subcommittee or working group assigned specifically to review this issue.

NEW BUSINESS

Guidelines for the Use Of MCAMLIS Copyrighted Materials on Municipal Web Sites

Chairman Bauer noted that copies of a memorandum setting forth guidelines for the use of MCAMLIS copyrighted materials on municipal web sites had been provided to Committee members for review prior to the meeting. Chairman Bauer further noted that Mr. Bennett had requested, at the Steering Committee meeting held on November 18, 2003, that a discussion of this topic be included at a future Steering Committee meeting. As a result of that request, the memorandum now before of the Steering Committee had been prepared. Chairman Bauer also noted that due to the press of time at the July 20, 2004, Steering Committee meeting, discussion of the memorandum had been held over. Chairman Bauer then asked Mr. Patterson to review the memorandum with the Committee.

Mr. Patterson stated that the language of the MCAMIS digital mapping materials Licensing Agreement previously approved by the Steering Committee, and currently in force, essentially states that the Licensee understands that copyrighted materials are being provided to the Licensee and that the Licensee agrees to treat the copyrighted material in accordance with the general principles of intellectual property law as protected by the copyright. More specifically, this means that the Licensee may not redistribute the provided digital mapping materials or any extracted subset of these materials to any third party. The Licensee is also expected to take specific action to insure that the digital medium upon which MCAMLIS digital mapping materials are kept is protected from access in their digital form by unlicensed users.

Mr. Patterson further stated that it was the opinion of the project staff, based upon their previous discussion with the intellectual property attorney who assisted in the original preparation of the License Agreement, that in order to adhere to the general principles of intellectual property law and to the specifics of the MCAMLIS License Agreement, the posting of MCAMLIS digital mapping material on municipal websites should be carried out in such a manner that these materials are "pictures only." The digital files that produce these pictures should never be accessible by any viewer of the picture over the Internet or through any other form of electronic communication. These strictures apply not only to the digital vector graphic files, but also to any rasterized image files created from the vector files. The manner in which this production is protected is the responsibility of the municipality, but may be provided by such means as firewalls or password protected files. The use of the MCAMLIS digital mapping materials to create hard copy images over electronic communication lines is, however, a permitted use of MCAMLIS digital mapping materials.

Chairman Bauer then asked for Committee questions or comments

Mr. Bennett stated that the City of Franklin had placed the digital maps that they had received from the MCAMLIS project on the Internet and that he did not believe that users accessing the City's internet site could achieve access to those maps. Mr. Patterson suggested that Mr. Bennett might want to have one of the City's information technology staff access the City site from a remote—that is, off-city—location and determine how far into the file structure that staff person could go. Mr. Patterson stated that if that staff person were able to copy a digital map file from the site, then the manner in which the site is currently set up would be in violation of both the MCAMLIS copyright and the MCAMLIS Steering Committee's adopted distribution policies and guidelines.

[Secretary's Note: Subsequent to this Steering Committee meeting, The City of Franklin's website was tested and it was determined that unauthorized—that is, unlicensed—users could directly access the MCAMLIS digital mapping materials in use by the City. This access included the ability to "download," or copy, these materials. Following this discovery, the city voluntarily deactivated the cognizant portion of its municipal website pending correction of this violation of the MCAMLIS digital map distribution guidelines.]

Ms. Olson asked if the provisions of the copyright also applied to raster images. Mr. Patterson responded that he had been advised by the legal counsel retained by the Steering Committee to provide guidance on this issue that the provisions did indeed also apply to raster images. Ms. Olson stated that these guidelines would be difficult to enforce since displays in any type of Internet Browser consist of raster images.

Chairman Bauer noted in this regard, that enforcement of a copyright is up to the holder of the copyright. If there is a perceived violation it would be up to the Steering Committee to take any desired enforcement

action. Chairman Bauer then asked Mr. Patterson if the document was being presented to the Steering Committee for formal approval. Mr. Patterson responded that since the memorandum had been prepared in answer to a question raised by Mr. Bennett, he believed it would be sufficient merely to place the memorandum on file by attachment to the meeting minutes.

Chairman Bauer then noted to Ms. Dowdle that SBC legal counsel would still need to determine the company's position as to whether or not it wished to continue jointly holding, with We Energies, the copyright to the MCAMLIS digital mapping materials. He further noted that this was not an issue that needed immediate resolution, but that it did remain an unresolved issue that still needed to be addressed at some point.

There being no further questions or comments on the memorandum, it was the consensus of the Committee that the memorandum be placed on file via the minutes of the meeting (a copy of the memorandum is attached to these minutes).

Discussion of the Request from the Register of Deeds to Use MCAMLIS Funds for Selected Tasks in the Register of Deeds Office

Chairman Bauer stated that Mr. LaFave had asked that this discussion item be placed upon the meeting agenda. Noting further that it had been necessary for Mr. LaFave to leave earlier in this meeting in order to attend another meeting, he asked Ms. Bach to review Mr. LaFave's request with the Steering Committee.

Ms. Bach stated that the recent retirements of several staff persons in the Register of Deed's Office and an inability to fill these vacant positions due to current County funding constraints had led to a backlog in the map update function within the Register of Deeds Office. She noted that she currently needed additional technical help with the map reproduction process and particularly a means to more rapidly produce the current MCAMLIS digital cadastral maps and convert them to text and display maps needed for the use of other Register of Deeds staff and local municipalities in their work to take the place of manual maps previously carried out by one of the retired employees.

Following a short discussion, it became apparent that Ms. Bach's most immediate need was for assistance in writing several short computer software programs that would provide for more rapid production of standardized map products at different map scales.

Mr. Patterson stated that these were relatively simply tasks for a programmer and that either staff in the Department of Parks and Public Infrastructure or SEWRPC should be able to write such programs with less than a man week's worth of effort and that, therefore, Ms. Bach's needs could be satisfied in a relatively inexpensive manner. Mr. Patterson stated that, if County staff were unable to do write the needed programs, SEWRPC staff could complete the needed software programs and charge the associated cost to the existing project management agreement.

Chairman Bauer asked Mr. High if the DPPI staff could provide such software programs to Ms. Bach in a timely fashion. Mr. High responded that he believed his staff could do that. Chairman Bauer stated that this was an effort that should be completed quickly in order not to further constrain Ms. Bach in carrying out her assigned MCAMLIS cadastral map update and maintenance functions and the additional demands caused by the temporary lack of sufficient staff in the Register of Deeds Office.

There being no further discussion, Chairman Bauer stated that by consensus the minutes of this meeting would show that either County staff or SEWRPC staff will assist Ms. Bach by providing the computer software programs she needs to carry out her responsibilities.

CORRESPONDENCE

Chairman Bauer noted that there was no correspondence to be brought before the Committee.

DATE, TIME, AND PLACE OF NEXT MEETING

Chairman Bauer stated that with the impending transfer of MCAMLIS program management responsibilities from SEWRPC to the Milwaukee County Department of Parks and Public Infrastructure, it would be desirable for MCAMLIS Steering Committee meeting agendas for the balance of 2004 to be developed jointly by the two organizations involved. The establishment of such a working relationship would assist in providing an incremental transition for the project management functions.

Chairman Bauer further suggested that Mr. Patterson should meet with County staff to work out the details of the transition as it affects both the MCAMLIS work projects and fiscal management, particularly the fund encumbrances made for specific project tasks. Chairman Bauer also suggested that the County staff should begin to think about the issues left on the table. The most important one being after January 1 2005, will the MCAMLIS Steering Committee continue to function as it has in the past, noting in this regard, that several complex issues still need to be addressed.

Additionally, Chairman Bauer noted that the Steering Committee would still need to make decisions concerning the manner in which the proposed MCAMLIS Replacement Digital Topographic Mapping Program would be carried out and which specific projects contained in the GeoAnalytics prepared reports the new project management staff would want to recommend for Steering Committee consideration. Chairman Bauer reiterated in this regard, that such specific recommendations were not explicitly clear in these reports and that County staff would have to translate the reports for the Steering Committee; that is, what tasks should be done and what will these tasks cost.

Chairman Bauer then asked the Committee to consider the date, time, and place of the next Committee meeting. After a brief discussion, it was tentatively determined that the next meeting of the Steering Committee should be held on October 19, 2004, at 9:00 a.m., in Room 203P of the Milwaukee County Courthouse.

ADJOURNMENT

There being no further business to come before the Steering Committee, on a motion by Mr. Shaw, seconded by Mr. Bennett and carried unanimously, the meeting was adjourned at 11:10 A.M.

Respectfully submitted,

Thomas D. Patterson
MCAMLIS Project Manager

EXECUTED LICENSE AGREEMENTS

Number of Executed Agreements		Licensee	Effective Date
Since 1995	For 2003	**2003**	
90.	1.	North Shore Fire Department	1/13/03
91.	2	Planning & Design Institute, Inc.	2/6/03
92.	3.	Nancy M. Aten	2/12/03
93.	4.	Graef, Anhalt, Schloemer and Associates, Inc.	4/2/03
94.	5.	Sandridge Commercial Real Estate, LLC	4/25/03
95.	6.	Bloom Consultants LLC	7/11/03
96.	7.	Landscape Architects, Inc.	7/22/03
97.	8.	Jenkins Survey and Design, Inc.	7/23/03
98.	9.	Access Engineering LLC	7/30/03
99.	10.	Fifth Ward Association	12/08/03
100.	11.	West Allis-West Milwaukee School District	12/10/03
Since 1995	For 2004	**2004**	
101.	1.	The Sigma Group	01/21/02
102.	2.	T N & Associates	02/20/04
103.	3.	Hayes Engineering Company	02/23/04
104.	4.	Geocomm	03/30/04
105.	5.	J. Spear Associates, Inc.	06/16/04
106.	6.	Key Engineering Group, Ltd.	07/21/04
107.	7.	LandCraft Survey and Engineering, Inc.	08/26/04

MCAMLIS FINANCIAL REPORT
(ADJUSTED FOR ENCUMBRANCE)

	1990 Actual	1991 Actual	1992 Actual	1993 Actual	1994 Actual	1995 Actual	1996 Actual	1997 Actual	1998 Actual	1999 Actual	2000 Actual	2001 Actual	2002 Actual	2003 Actual	7/31/2004 Actual	TOTAL
Beginning Period Reserve-January 1	0	283,340	595,922	695,124	952,054	1,990,280	1,339,649	1,415,929	1,532,289	1,943,499	2,288,015	2,130,541	2,336,378	2,748,988	3,783,878	3,783,878
Mid-Year Reserve Changes	0	0	0	0	0	0	0	0	0	0	0	0				0
Current Period Reserve	0	283,340	595,922	695,124	952,054	1,990,280	1,339,649	1,415,929	1,532,289	1,943,499	2,288,015	2,130,541	2,336,378	2,748,988	3,783,878	3,783,878
Recording Fees (**$4.00** Portion)	101,886	324,983	612,592	676,093	647,355	503,342	574,328	644,508	769,820	773,078	609,683	743,977	918,012	1,178,762	458,584	9,537,003
Recording Fees (**$1.00** Portion)												72,968	230,597	295,988	115,168	714,721
State Grants	0	0	0	150,000	200,000	165,000	138,500	55,300	139,226	152,270	103,895	325,997	197,979	223,055	34,136	1,885,358
1 Private Utility Contributions	312,000	312,000	312,000	312,000	312,000	0	0	0	0	0	0	0				1,560,000
2 MMSD Contribution	0	0	0	50,000	50,000	50,000	50,000	50,000	50,000	50,000	170,000	0				520,000
Annual Revenue	413,886	636,983	924,592	1,188,093	1,209,355	718,342	762,828	749,808	959,046	975,348	883,578	1,142,942	1,346,588	1,697,805	607,888	14,217,082
TOTAL FUNDS AVAILABLE	413,886	920,323	1,520,514	1,883,217	2,161,409	2,708,622	2,102,477	2,165,737	2,491,335	2,918,847	3,171,593	3,273,483	3,682,966	4,446,793	4,391,766	18,000,960
Additional Encumbrance	100,000	22,075	534,849	272,943	-900,864	112,067	308,902	367,776	361,580	386,754	586,545	737,559	577,619	375,752	568,082	4,411,639
Less Prior Year Additional Encumbrance		-100,000	-22,075	-534,849	-272,943	900,864	-112,067	-308,902	-367,776	-361,580	-386,754	-586,545	-737,559	-577,619	-375,752	-3,843,556
Legal Fees	0	350	600	0	0	0	0	0	0	0	0	0				950
Systems Consulting (UGC)	0	128,638	0	0	0	0	0	0	0	0	0	0				128,638
USPLS Remonumentation	0	41,260	0	0	0	0	0	0	0	0	0	0				41,260
Horizontal/Vertical Control Surveys	0	144,443	0	0	0	0	0	0	0	0	0	0				144,443
Aerial Photos/Mapping	21,555	17,925	292,060	1,178,794	1,340,370	356,953	490,821	576,268	556,108	608,450	842,594	787,620	1,095,708	866,757	186,570	9,218,552
Project Facilitator	8,991	73,567	21,650	14,995	0	0	0	0	0	0	0	0				119,203
Conference	0	59	1,046	319	0	0	528	0	0	0	0	0				1,953
RoD Computer Hardware/Software																0
RoD Materials Copied	0	0	0	0	6,291	797	0	0	0	0	0	0				7,088
Computer Maintenance																0
Computer/Office Supplies	0	0	0	0	0	0	26	0	0	0	0	0				26
DPW Needs Analysis																
IMSD Strategic Initiative																
Contractual Crosscharges	40	554	13	0	0	0	3	5	0	0	343	0	442	0		1,399
Charges Paid By Other Departments	0	-4,470	-2,752	-1,040	-1,724	-1,708	-1,664	-1,700	-2,116	-2,792	-1,676	-1,529	-2,232	-1,975	-845	-28,223
Miscellaneous									40	0	0	0				40
Annual Expenditures	30,586	402,326	312,616	1,193,069	1,344,936	356,042	489,713	574,573	554,032	605,658	841,261	786,091	1,093,918	864,782	185,725	9,635,329
TOTAL EXPS / ENCUMBRANCES	130,586	324,401	825,391	931,162	171,130	1,368,973	686,548	633,448	547,836	630,832	1,041,052	937,105	933,978	662,915	378,055	14,046,968
NET AVAIL FUNDS (END RESERVE)	283,300	595,922	695,124	952,054	1,990,280	1,339,649	1,415,929	1,532,289	1,943,499	2,288,015	2,130,541	2,336,378	2,748,988	3,783,878	4,013,711	3,953,992

1. 1994 was the final year for this revenue source.
2. $50,000 will be paid each year through 2000, and $20,000 in 2003.

Prepared by Milwaukee County
DAS-Fiscal Affairs
9/7/2004

COPY

MILWAUKEE COUNTY

AUTOMATED MAPPING AND

LAND INFORMATION SYSTEM

c/o Southeastern Wisconsin
Regional Planning Commission
W239 N1812 Rockwood Drive
PO Box 1607
Waukesha, Wisconsin 53187-1607

MEMORANDUM

TO: All Members of the MCAMLIS Steering Committee

FROM: Chairman, Kurt W. Bauer

DATE: July 30, 2004

SUBJECT: **Subcommittee Appointments**

Please be advised that in accordance with the action of the MCAMLIS Steering Committee taken at its meeting held on July 20, 2004, I have appointed the following persons to a Subcommittee. The Subcommittee is to advise the Steering Committee on the need and specifications for the proposed topographic mapping program considered at the meeting of July 20, 2004.

Mr. Timothy R. Bate, P.E. – Chairman
Engineering Planning Manager
Milwaukee Metropolitan Sewerage District and
President, Wisconsin Section, American Society of Civil Engineers
P. O. Box 3049
Milwaukee, WI 53201-3049

Mr. Rick Norris, P.E., President
Norris and Associates, Inc.
Consulting Engineers
7100 W. Center Street
Milwaukee, WI 53210

Mr. Gregory G. High, Director
Architectural and Engineering Services
Department of Parks and Public Infrastructure
2711 W. Wells Street
Second Floor
Milwaukee, WI 53208

COPY

Mr. William C. Shaw
GIS Manager
WE Energies
333 W. Everett Street, A259
Milwaukee, WI 53290-0001

Mr. Timothy J. Thur, P.E.
Civil Engineer II
City of Milwaukee
Environmental Engineering Division
Zeidler Municipal Building
841 N. Broadway, Room 820
Milwaukee, WI 53202

Mr. Thomas D. Patterson will provide staff services to the Subcommittee.

Should you have any comments or questions concerning this matter, please do not hesitate to call Mr. Patterson.

* * *

KWB/TDP/lgh
#97944 V1 - SUBCOMMITTEE APPOINTMENTS

MILWAUKEE COUNTY
AUTOMATED MAPPING AND
LAND INFORMATION SYSTEM

c/o Southeastern Wisconsin
Regional Planning Commission
W239 N1812 Rockwood Drive
PO Box 1607
Waukesha, Wisconsin 53187-1607

MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: Thomas D. Patterson, MCAMLIS Project Manager

DATE: July 7, 2004

SUBJECT: **Proposed MCAMLIS Replacement Digital Topographic Mapping Program**

Introduction

Replacement of the older existing digital topographic mapping in Milwaukee County has been discussed by the MCAMLIS Steering Committee on numerous occasions over the past several years. Indeed, such a replacement mapping program was recommended in the MCAMLIS Program Strategic Assessment document adopted by the Steering Committee at its meeting held on October 8, 2002, and again in the update to that Strategic Assessment document adopted by the Steering Committee at its meeting held on June 10, 2003. The major impediment to undertaking such a replacement program has been the inability to secure a sustained stream of funding sufficient to carry out the program over a relatively short period of time. The discovery at the end of 2003 of an amount in excess of $3 million in previously unreported MCAMLIS Program reserve funds now makes the initiation of a replacement digital topographic mapping program feasible. Accordingly, a proposal for a four year program for the replacement of the existing MCAMLIS digital topographic mapping is set forth herein for Steering Committee consideration.

The Need for Replacement of Existing Topographic Mapping

The ages of existing digital topographic mapping are shown on the map attached hereto as Map 1. Approximately 82 percent of the existing digital, topographic mapping is now between ten years and 20 years old. All digital topographic mapping carried out since 1992 has been acquired under the auspices of the MCAMLIS Program and was digitally compiled directly from three-dimensional stereoscopic models constructed from aerial photography acquired specifically for that purpose. All digital topographic mapping prepared prior to 1992 was prepared using older technology and was converted to digital format either by board digitizing or by scanning of hard copy maps, rendering these digital maps moderately more cumbersome to use, but in no way compromising the accuracy of the features portrayed on the maps. Increasingly, comments from users of these maps indicate that the continually advancing age of the mapping adversely affects the map's utility for the users; not only from the standpoint that newer development is absent from these maps, but also from the standpoint that more recent demolitions, public works reconstructions, and private redevelopment projects are not shown.

Proposed Digital Topographic Mapping Replacement Program

A proposed program for the replacement of the older MCAMLIS digital topographic mapping within Milwaukee County is illustrated on the map attached hereto as Map 2. The proposal does not include replacement of the two most recently completed digital topographic mapping projects carried out by the MCAMLIS Steering Committee. These two projects: the 1999 Cudahy – St. Francis – South Milwaukee – General Mitchell International Airport Project and the 2002 Lincoln Creek project are relatively recent and were both carried out using still current "state-of-the-art" map compilation techniques including the preparation of a digital terrain model.

The proposed program would replace all other existing digital topographic mapping over a four year period as identified on Map 2. The estimated cost to carry out this program is approximately $2,700,000, which amount would be spread over a four year period as set forth in the table below.

PROPOSED MCAMLIS REPLACEMENT DIGITAL TOPOGRAPHIC MAPPING PROGRAM

Cost Estimates

First Year	(approximately 47.25 square miles)	$ 607,870
Second Year	(approximately 54.50 square miles)	701,140
Third Year	(approximately 45.50 square miles)	585,360
Fourth Year	(approximately 61.75 square miles)	794,410
	Total	$ 2,688,780

Assumptions: Average cost will be about $12,865/square mile:
$440/square mile for paneling and aerial photography;
$12,000/square mile for mapping;
$425/square mile for quality control and digital file structure review.

The cost of this program is proposed to be funded through the use of the available surplus funds estimated to total about $3,784,000 as of December 31, 2003, along with any additional amounts taken from yearly operating budgets, if needed, as may be necessary to complete the work in a timely fashion.

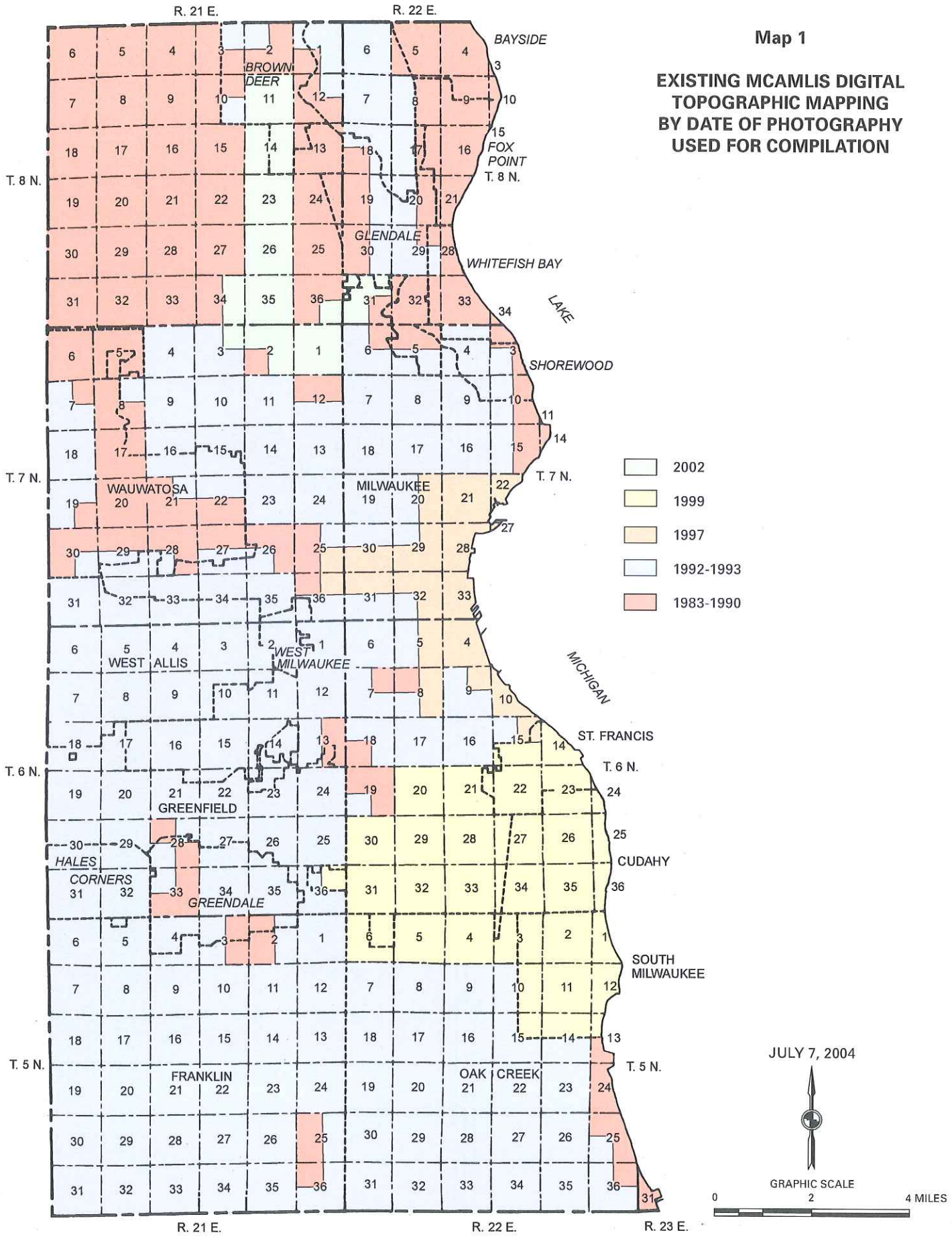
Recommendations

Project staff recommends that the Steering Committee commit to a four year program leading to the preparation of replacement of digital topographic mapping as set forth in the above table and as delineated on Map 2. It is also recommended that the MCAMLIS Steering Committee enter into an agreement, with the Southeastern Wisconsin Regional Planning Commission to acquire the necessary digital topographic mapping over a four year period. The Regional Planning Commission will in turn subcontract with a qualified photogrammetric engineer judged to be capable of completing the desired mapping to previously adopted MCAMLIS digital topographic mapping specifications and standards. Finally, it is recommended that this program begin immediately using aerial photography acquired by AeroMetric, Inc. for the two northern most townships in Milwaukee County during the Spring of 2004. This photography, acquired by AeroMetric, Inc. was designed for producing digital two foot contour interval topographic base maps to MCAMLIS specifications and standards.

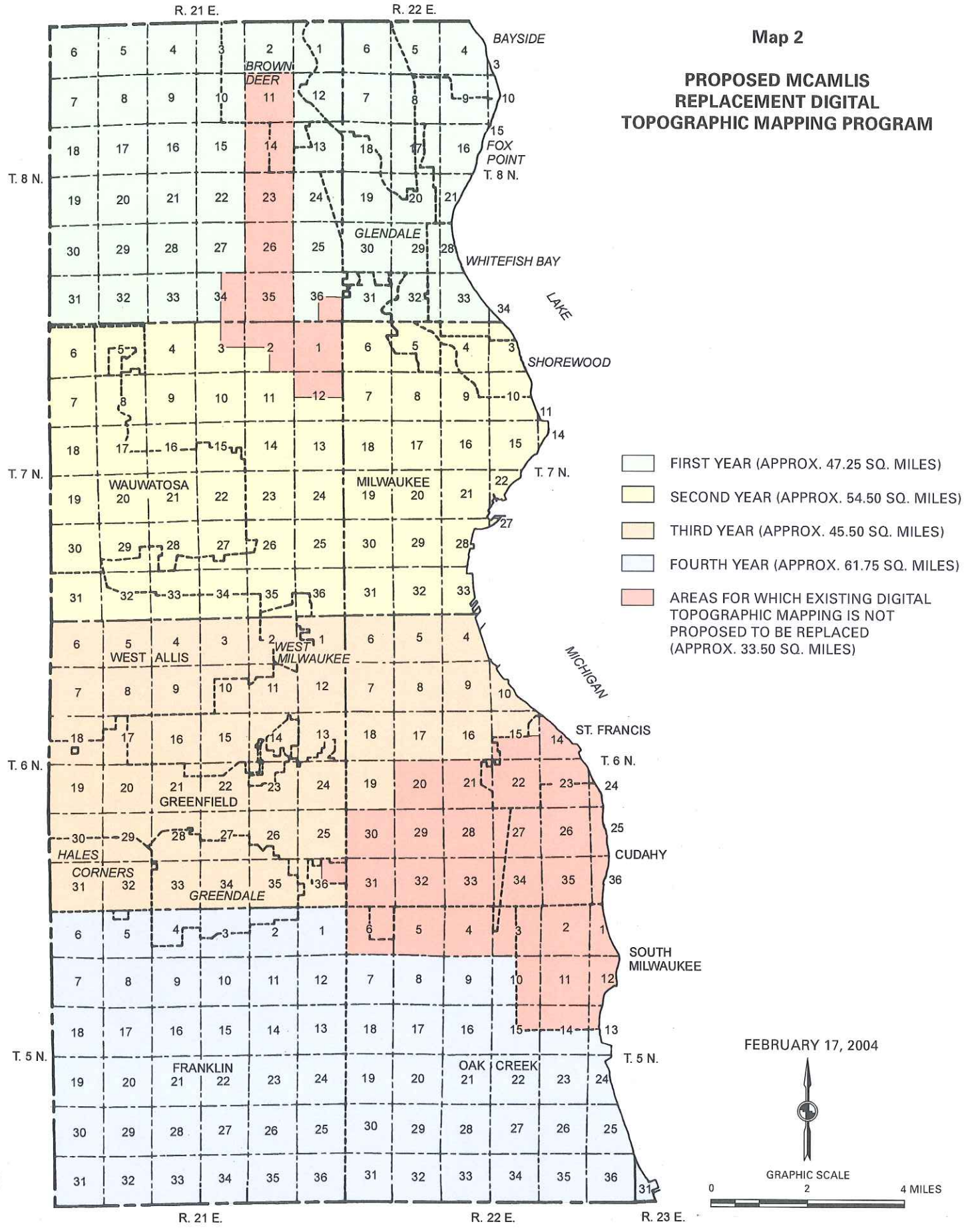
* * *

Map 1

EXISTING MCAMLIS DIGITAL TOPOGRAPHIC MAPPING BY DATE OF PHOTOGRAPHY USED FOR COMPILATION



Source: MCAMLIS Project Manager.



Map 2

PROPOSED MCAMLIS REPLACEMENT DIGITAL TOPOGRAPHIC MAPPING PROGRAM

Source: MCAMLIS Project Manager.

MINUTES OF THE FIRST MEETING

Milwaukee County Automated Mapping and Land Information System
Subcommittee on Topographic Mapping

DATE: August 13, 2004

TIME: 1:30 P.M.

PLACE: Milwaukee County Courthouse
Room 203P
901 North Ninth Street
Milwaukee, Wisconsin

Members Present

Timothy R. Bate, P.E., Chairman	Engineering Planning Manager, Milwaukee Metropolitan Sewerage District, and President, Wisconsin Section, American Society of Civil Engineers
Gregory G. High	Director, Architectural and Engineering Services, Milwaukee County Department of Parks and Public Infrastructure
Mr. Rick Norris, P.E.	President, Norris and Associates, Inc.
William C. Shaw	Manager, Geographic Information Systems, WE Energies
Timothy J. Thur, P.E.	Chief Sewer Design Manager, Environmental Engineering Division, City of Milwaukee

Guests and Staff Present

Marcia G. Lindholm	Central Drafting and Records Manager, Infrastructure Services Division, City of Milwaukee
Thomas D. Patterson	MCAMLIS Project Manager, SEWRPC

ROLL CALL AND INTRODUCTIONS

The First meeting of the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Subcommittee on Topographic Mapping was called to order by Chairman Bate at 1:30 p.m. Roll call was taken by circulating an attendance signature sheet, and a quorum was declared present. This being the first meeting of the Subcommittee, Chairman Bate asked all present to introduce themselves to the others present

CHARGE TO THE SUBCOMMITTEE

Mr. Patterson noted that copies of the Charge to the Subcommittee had been distributed to all members of the Subcommittee for review prior to the meeting. After briefly reviewing the points contained in the charge, Mr. Patterson asked if there were any questions or comments.

Mr. Shaw called the Subcommittee's attention to the statement in the Charge to the Subcommittee, "Evaluate and comment upon the utility of the MCAMLIS digital topographic maps for their intended audience," stating that he found the term "audience" rather vague and asked if a specific description of the intended audience could be provided. Mr. Patterson responded that the Southeastern Wisconsin Regional Planning Commission (SEWRPC) staff believed that the topographic maps and their integral survey

control system had a very broad audience including attorneys, abstractors, appraisers, land surveyors, civil engineers, and planners in private practice; private utility corporations; government agencies, such as county, town, city, and village assessment, planning, engineering and land information departments; county and state transportation departments; sewerage, airport, harbor, and park and planning commissions; and soil and water conservation districts.

Mr. Norris asked about the amount that users of the topographic maps might be willing to pay and whether or not some of the costs of preparing the maps and keeping then in a current state could be borne by the users. Mr. Patterson stated that because the topographic maps covering Milwaukee County were covered by a copyright and by a set of adopted guidelines for distribution of these maps, that current map users pay for the cost of reproduction and media for digital maps and for the cost of reproduction of paper maps. Mr. Patterson further stated that if the maps were in the public domain, Wisconsin Statutes, particularly the "open records" requirements, could be expected to make any capital cost recovery quite difficult, if not impossible.

There being no additional questions or comments on the charge, it was the consensus of the Subcommittee that the charge be placed on file via the minutes of the meeting (copy of Charge to the Subcommittee attached to these minutes).

BRIEF HISTORY OF THE FORMATION OF THE MCAMLIS PROGRAM

Mr. Patterson noted that during 1988 the Milwaukee County Board of Supervisors had requested SEWRPC to convene an Advisory Committee to explore the feasibility and cost effectiveness of modernizing land records within the county by developing an Automated Mapping and Land Information System. The Advisory Committee's report was set forth in SEWRPC Community Assistance Planning Report No. 177, *Feasibility Study for a Milwaukee County Automated Mapping and Land Information System*, 1989, now out of print; was presented to the Milwaukee Board during 1989; and was adopted by that Board, subject to the condition that county tax levy monies not be used to fund the implementation of the recommended program.

Mr. Patterson further noted that at about this same time, efforts were underway at the State level to secure a dedicated stream of funding that could be used for County land records modernization initiatives. This interest eventually resulted in legislation that created the Wisconsin Land Information Program (WLIP) and established an oversight board, the Wisconsin Land Information Board (WLIB). Among the first of the priorities for this Board was to propose to the State Legislature a mechanism for funding modernization initiatives. The eventually agreed upon mechanism for securing these funds was a $6 fee imposed upon specific documents filed in the County Register of Deeds Office. Four dollars of this fee were retained by the County and used to fund implementation of the adopted County Land Records Modernization Plan. Two dollars of this fee was forwarded to the State to be used by the WLIB, partially for the administration of a grants and aids program for the distribution of grants back to the counties.

Mr. Patterson stated to the Subcommittee that the MCAMLIS program was the product of a contractual arrangement initiated in 1990 between Milwaukee County, the Milwaukee Metropolitan Sewerage District (MMSD), The Wisconsin Electric Power Company (now We Energies), the Wisconsin Gas Company (also now We Energies), and the Wisconsin Telephone Company (now SBC). The contract between and among these organizations called for the joint development of an interrelated system of survey control and digital base maps for Milwaukee County that could be used by all government and private organizations concerned as set forth in the adopted County plan. The MCAMLIS program was intended to provide the digital base maps with each respective municipality and investor owed utility

mapping its own facilities on these maps. The intent in doing this was to help ensure that as digital mapping capabilities were developed by the various government and private organizations, that facilities developed upon the "joint" maps would "overlay" each other in their correct relative positions.

Mr. Patterson further stated that governance of the MCAMLIS Program was vested by the contract in a Steering Committee comprised of ten members: four representing Milwaukee County; one each representing the MMSD and the three investor owned utilities involved; and 1 representative each from the City of Milwaukee and the Milwaukee County Intergovernmental Cooperation Council, the latter Council representing those Milwaukee County cities and villages less the City of Milwaukee.

Mr. Patterson went on to state that funding for the MCAMLIS Program comes principally from the $4 fee which Milwaukee County is authorized to collect by State Statute on the first page of specified documents recorded in the Register of Deeds Office. The Sewerage District and the three investor owned utilities each contributed $520,000 towards the initiation of the program, all of which amounts have been paid. Additionally, funds are received in the form of grants from the Wisconsin Land Information Program.

BRIEF OVERVIEW OF THE INITIAL MCAMLIS WORK EFFORTS

Mr. Patterson noted that one of the first efforts undertaken by the MCAMLIS Steering Committee was securing the approval of the WLIB for the previously County Board adopted SEWRPC Report No. 177 as the County's authorized Land Records Modernization Plan. Once the approval of this plan by the WLIB was secured, the plan recommendations contained in that report became the focus of the initial MCAMLIS work efforts.

Mr. Patterson stated that since its formation, the MCAMLIS Steering Committee has been responsible through delegation from the Milwaukee County Board of Supervisors for the completion of the county-wide digital maps and associated materials. The Steering Committee oversees all expenditures made by the MCAMLIS program and has responsibility for the overall program direction.

Mr. Patterson further stated that the MCAMLIS program has no permanent staff. With the exception of the first year of the program, the Steering Committee has contracted with the SEWRPC for project management. The SEWRPC provides a Project Manager and sufficient additional support staff as needed to carry out the various MCAMLIS work efforts.

The MCAMLIS work program is also subject to guidelines contained in those Wisconsin Statutes pertaining to the WLIP and by policy decisions rendered by the WLIB, the agency charged with overseeing the WLIP. WLIB also has responsibility for administering the grant program which provides one of the sources of funding for the MCAMLIS work efforts.

Mr. Thur stated that it was his understanding that the WLIB and the WLIP were subject to "sunset provisions" in the State Statutes. In response to a further question from Mr. Thur, Mr. Patterson stated that under current Statutes, the WLIB and the WLIP were due to "sunset" in August, 2005. Mr. Patterson further noted that grant support from the Wisconsin Land Information Program had been declining in recent years and that the State was redirecting funds that were formerly used to fund grants for the WLIP to funding of comprehensive planning grants awarded under the provisions of the State "Smart Growth" Legislation. In any case, Mr. Patterson added, the Statutes provide for the indefinite continuation of the collection of the four dollar document recording fee by the counties for use in county and local land records modernization; and of the two dollar document recording fee for use by the State in land records modernization and comprehensive planning grants in support of the State's "Smart Growth" legislation.

Using a number of mounted maps and figures as examples, Mr. Patterson then reviewed in turn each of the major initial MCAMLIS work efforts.

The MCAMLIS Sponsored Completion of the Milwaukee County United States Public Land Survey Relocation and Monumentation

Mr. Patterson stated that prior to the initiation of the MCAMLIS program, an effort had already been initiated, coordinated by the SEWRPC, to relocate and permanently monument the corners of the U.S. Public Land Survey System. Approximately 90 percent of this effort had already been completed in Milwaukee County prior to the initiation of the MCAMLIS program. The completion of this effort was undertaken by the MCAMLIS program as one of its first major work initiatives.

The MCAMLIS Sponsored Completion of the Milwaukee County Control Survey Network

Mr. Patterson stated that prior to the initiation of the MCAMLIS program, an effort had already been initiated, again under the coordination of SEWRPC, to complete a control survey network in Milwaukee County. This network consisted of the monumented U.S. Public Land Survey System (USPLSS) corners which were tied together by both high order horizontal and vertical control surveys, thus providing an "x", "y", and "z" coordinate for each monumented USPLSS corner in the network. The horizontal control surveys were referenced to the North American Datum of 1927 and vertical surveys were referenced to the National Geodetic Vertical Datum of 1929. Positions for all stations located on the ground were then computed for a map projection, in this case, the Wisconsin State Plane Coordinate System, South Zone.

Mr. Patterson further stated that approximately 90 percent of this effort had already been completed by the beginning of the MCAMLIS program with the completion of this effort being undertaken by the MCAMLIS program as one of its first major work initiatives.

Mr. Patterson also stated that the implemented survey control system has been used as the control system for all subsequent MCAMLIS mapping efforts and later as control for digital aerial orthophotography projects.

The MCAMLIS Topographic Mapping Program

Mr. Patterson stated that prior to the initiation of the MCAMLIS program, two foot contour interval topographic base maps in analog, or hard copy, form, had been prepared for approximately 60 percent of Milwaukee County utilizing the previously completed survey control system and specifications for such mapping developed by the SEWRPC. These maps were prepared to meet National Map Accuracy Standards at a scale of 1:1,200 (1 inch = 100 feet), and were paid for largely by the local units of government -- an indication of the usefulness of these maps for planning and engineering.

Mr. Patterson further stated that topographic base maps for the 40 percent of the area of Milwaukee County for which two foot contour interval topographic base maps had not been previously prepared were acquired by the MCAMLIS Program as digital maps. Of the previously prepared topographic base mapping covering approximately 60 percent of the County, a portion of those maps were replaced by newly compiled digital two foot contour interval topographic base maps as part of the initial MCAMLIS mapping efforts due to its age and due to the extent of change that had occurred in the mapped area since the initial date of mapping. The remaining analog topographic maps were converted to digital form

through a combination or digitizing and scanning techniques. Any maps carrying compilation dates earlier than 1991had been prepared using these conversion techniques.

Mr. Norris stated that he saw the need for the replacement of older maps and aerial photography on a timely schedule and the need to make the maps and aerial photography readily available to users. Mr. Norris noted that he also believed that there were questions that needed to be addressed concerning the cost of keeping the topographic maps and aerial photography in a relatively current condition and how that cost should be supported. He further stated his belief that there needed to be a management program in place to insure timely updating and replacement.

The MCAMLIS Digital Real Property Boundary Line Mapping Program

Mr. Patterson stated that a set of digital real property boundary line maps had also been prepared by the MCAMLIS program. Once the underlying topographic mapping had been sufficiently completed to provide the "ground truth" necessary to properly compile the digital real property boundary line maps, such maps for the portions of Milwaukee County outside of the City of Milwaukee were completed by 1999. Beginning in 1999 the MCAMLIS Program undertook an effort, in cooperation with the City of Milwaukee, to "reproject" digital real property boundary line maps for the area within the City of Milwaukee using digital base maps previously prepared by the City of Milwaukee and the MCAMLIS digital topographic base maps, which supplied the "ground truth" for the reprojection effort.

Component Interrelationships

Mr. Patterson stated that while the completion of each of the four above identified work efforts would have resulted in the preparation of maps and records useful in their own right, there was an additional value involved in the manner in which these four elements were designed to relate to one another. The completion of these four work efforts resulted in a geometrically integrated system, the value of which exceeds the sum of the value of the individual components. The system provides a scientifically sound and mathematically rigorous methodology for moving between ground measurements and map projection measurements in both directions. It further creates a system that is self-improving over time as better measurements are acquired in the present and in the future, and as updated information is continually incorporated into the system. Allowing any one component to deteriorate or become outdated diminishes the overall value of the system.

REVIEW OF THE PROPOSED MCAMLIS DIGITAL TOPOGRAPHIC REPLACEMENT MAPPING PROGRAM

Mr. Patterson stated that the information presented to the Subcommittee up to this point in the meeting had been intended to provide a background for the Subcommittee members in evaluating the proposed MCAMLIS Digital Topographic Replacement Mapping Program.

Review of the Previously Completed MCAMLIS Digital Topographic Replacement Mapping Projects

Mr. Patterson then distributed a map to the Subcommittee members delineating the location of three previously completed MCAMLIS sponsored "replacement" digital mapping projects (copy of map attached to these minutes).

The three replacement mapping projects conducted to date -- the Menomonee Valley -- Inner Harbor project, the St. Francis -- Cudahy -- South Milwaukee -- General Mitchell International Airport project, and the Lincoln Creek -- Southbranch Creek project – were completed using digital topographic map compilation techniques that were considered to be fully "state-of-the-art" at the time of their initiation,

including the completion of a digital terrain model as part of the two most recent mapping projects. It should be noted that these projects were requested, in order, by the Milwaukee Metropolitan Sewerage District supported by the City of Milwaukee; Milwaukee County and the three suburban municipalities concerned; and the MCAMLIS project staff again indicating the value of these maps for planning and engineering purposes, including such uses as flood plain delineation; airport approach zone obstruction mapping and local municipal planning and engineering.

Mr. Patterson stated that the specifications developed for use in the two most recent projects formed the basis for the specifications proposed by the staff to be used for the MCAMLIS Digital Topographic Replacement Mapping Program.

Review of the Proposed MCAMLIS Digital Topographic Replacement Mapping Program
Mr. Patterson noted that copies of a memorandum addressed to the MCAMLIS Steering Committee had been distributed to all members of the Subcommittee for review prior to the meeting.

Mr. Norris again stated his position that there needed to be a longer range plan for continuous update of the digital topographic maps and digital orthophotography. Mr. Shaw noted that there may be certain areas that are more important to update than others and suggested the need for a mechanism for "change recognition" as part of the determination of when updates are warranted.

Chairman Bate, Mr. Shaw and Mr. Thur asked if the Replacement Mapping Program could have been undertaken absent the discovery late in 2003 of the previously unreported surplus in the MCAMLIS Program reserve fund. Mr. Patterson responded that the Steering Committee had indeed considered the need to update the Milwaukee County digital topographic mapping on several occasions over preceding years, and had included replacement topographic mapping in the MCAMLIS strategic assessment and multi-year work plan. Mr. Patterson stated that on the basis of priorities established by the Steering Committee there had not previously been sufficient funding remaining in individual budget years to undertake any significant replacement topographic mapping prior to the discovery of the previously unreported surplus.

Mr. Thur stated that he had spoken with several colleagues at the City of Milwaukee and could not determine that the City staff used the MCAMLIS topographic maps very often and, therefore, questioned the value of a Topographic Replacement Mapping Program to the City of Milwaukee. Mr. Patterson responded that he found it difficult to believe that the topographic maps had little use or value to City staff noting the past City support for the replacement mapping of the Menomonee Valley and environs. He noted further that SEWRPC staff were currently assisting the City in preparing a Wisconsin Department of Natural Resources/Federal Emergency Management Administration Floodplain Study Submittal for Lincoln Creek, and that the MCAMLIS digital topographic maps provided needed horizontal and vertical profile and benchmark information to develop and operate the computer simulation models that determine floodplain and floodway elevations, and further provided an accurate horizontal and vertical base for delineating the limits of floodplain and floodway boundaries. Such mapping, capable of accurately delineating the location of two feet internal contour lines, is now generally a requirement for obtaining agency approval of updated floodplain studies for use in Floodplain Insurance Study (FIS) mapping. This particular study submittal had been undertaken at the City's specific request and the SEWRPC staff were assuming that the City would request assistance on preparing similar study submittals for additional stream reaches in the City as joint MCAMLIS/MMSD floodplain analyses were completed. The MCAMLIS topographic base maps would be used in a similar fashion for any subsequent Floodplain Study Submittals requested by the City.

Mr. Patterson also stated that the digital topographic maps had been used by the Wisconsin Department of Transportation and private consultants working for the City to conduct traffic studies and for preliminary engineering studies for roadway reconstruction within the City. Mr. Patterson finally stated that he believed the maps did have value for the City and that this value would increase if the maps were updated more frequently.

DATE, TIME AND PLACE OF NEXT MEETING

Mr. Norris noted that he would need to leave at this point in order to honor a previous commitment. Mr. Patterson asked, since it was apparently necessary to adjourn the meeting at this point, that the Subcommittee establish a date, time and place for its next meeting prior to adjournment. After several minutes of discussion, the Subcommittee was unable to agree upon a date and time for the next Subcommittee meeting. Chairman Bate requested that Mr. Patterson compile a list of possible dates and times for a second meeting; share that list via electronic mail with the Subcommittee members; and establish a date, time and place for the next Subcommittee meeting in that manner.

ADJOURNMENT

On a motion by Mr. High, seconded by Mr. Norris, and carried unanimously, the meeting was adjourned at 3:15 p.m.

Respectfully submitted,

Thomas D. Patterson
MCAMLIS Project Manager

MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM

SUBCOMMITTEE ON TOPOGRAPHIC MAPPING

Charge To The Subcommittee

- Make Recommendations to the MCAMLIS Steering Committee on the Proposed MCAMLIS Digital Topographic Replacement Mapping Program

  - Evaluate and Comment Upon the Utility of the MCAMLIS Digital Topographic Maps for their Intended Audience

  - Review and Comment Upon the Substantive Specifications and the Digital File Organization and Operating Environment Specifications for the Proposed Replacement Mapping Program; specifically, the Relationship between these Specifications and State-of-the Art Practices

  - Recommend Whether or Not the MCAMLIS Steering Committee should Undertake a Replacement Mapping Program

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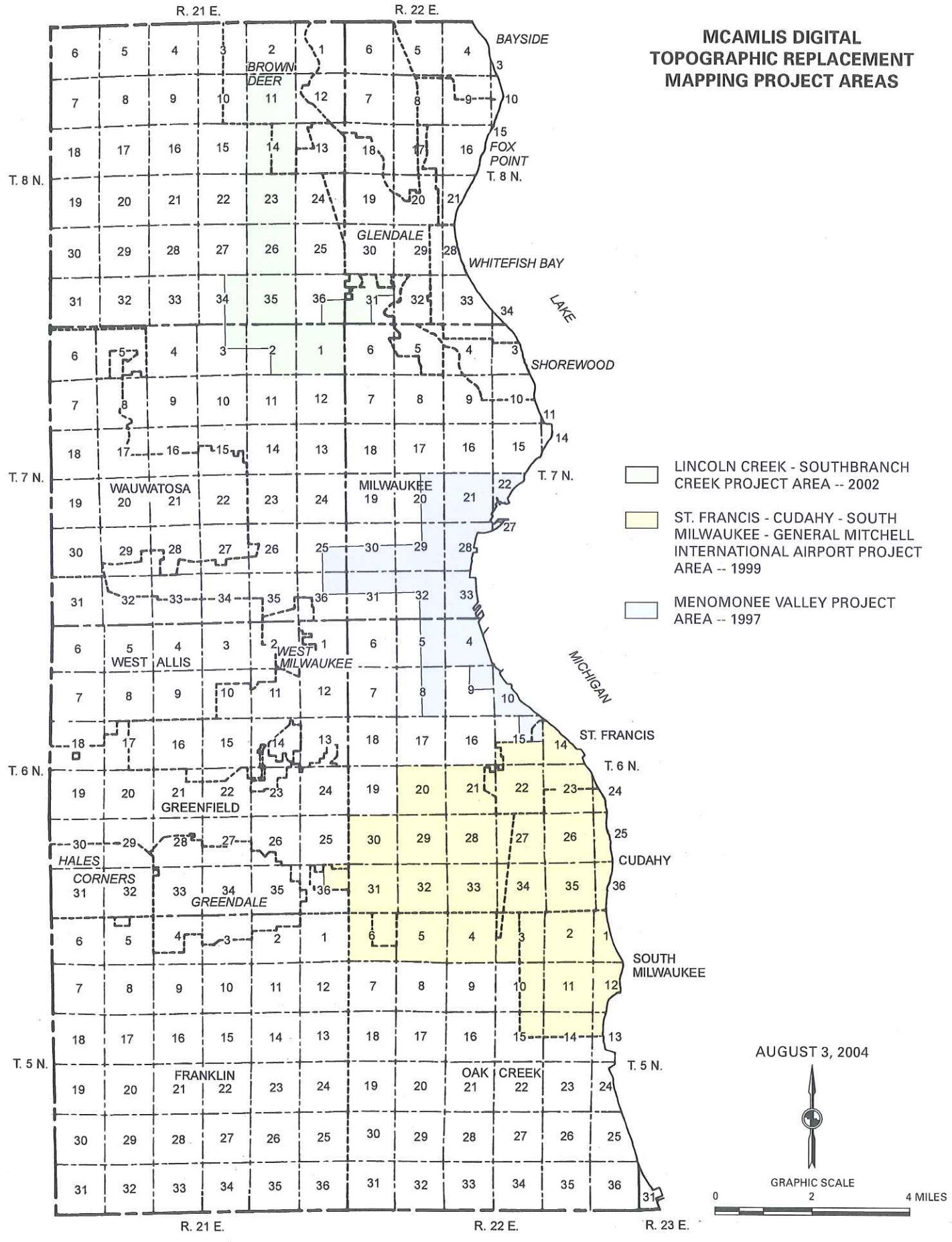
TDP/lgh
#98047 V1 - MCAMLIS-Charge To Subcommittee



Source: MCAMLIS Project Manager.

MINUTES OF THE SECOND MEETING

Milwaukee County Automated Mapping and Land Information System
Subcommittee on Topographic Mapping

DATE: Thursday, October 19, 2004

TIME: 2:00 P.M.

PLACE: Milwaukee County - City Campus
Room 219
2711 W. Wells Street
Milwaukee, Wisconsin

Members Present

Timothy R. Bate, P.E., Chairman	Engineering Planning Manager, Milwaukee Metropolitan Sewerage District, and President, Wisconsin Section, American Society of Civil Engineers
Gregory G. High	Director, Architectural and Engineering Services, Milwaukee County Department of Parks and Public Infrastructure
William C. Shaw	Manager, Geographic Information Systems, WE Energies
Timothy J. Thur, P.E.	Chief Sewer Design Manager, Environmental Engineering Division, City of Milwaukee

Members Absent

Mr. Rick Norris, P.E.	President, Norris and Associates, Inc.

Guests and Staff Present

Thomas D. Patterson	MCAMLIS Project Manager
Kevin R. White	GIS Supervisor, Architectural and Engineering Services, Milwaukee County Department of Parks and Public Infrastructure

ROLL CALL

The third meeting of the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Subcommittee on Topographic Mapping was called to order by Chairman Bate at 2:05 p.m. Roll call was taken by circulating an attendance signature sheet and a quorum was declared present.

CONSIDERATION OF THE MINUTES OF THE SECOND SUBCOMMITTEE MEETING HELD ON SEPTEMBER 2, 2004

Mr. Patterson noted that copies of the Minutes of the second meeting of the Subcommittee held on September 2, 2004, had been distributed to all members of the Subcommittee for review prior to the meeting and asked that the Committee consider those minutes.

There being no questions, comments, or corrections, on a motion by Mr. High seconded by Mr. Shaw and carried unanimously, the minutes of the meeting of September 2, 2004, were approved as published.

REVIEW OF THE SUBCOMMITTEE REPORT CONCERNING THE MCAMLIS DIGITAL TOPOGRAPHIC REPLACEMENT MAPPING PROGRAM

REVIEW AND DISCUSSION OF THE PROPOSED SPECIFICATIONS FOR MCAMLIS DIGITAL TOPOGRAPHIC MAPPING

Mr. Patterson noted that copies of the Proposed Detailed Specifications for MCAMLIS Digital Topographic Mapping had been distributed to all members of the Subcommittee for review prior to the first Subcommittee meeting. Mr. Patterson then proceeded to review the specifications with the Subcommittee.

Mr. Shaw called attention to the section of the specifications concerning several data sets prepared as "by products" of the preparation of the digital terrain model and inquired about their intended use. Mr. Patterson responded that these additional data sets were acquired so that geometrically continuous line segment maps could be completed for hydrographic networks and street and highway networks. These products, Mr. Patterson noted, were not used to produce the digital topographic maps, but were useful for certain GIS applications; emergency vehicle routing being one example.

Mr. Norris asked Mr. Patterson for clarification on the manner in which the specifications called for the digital topographic mapping to be delivered. Mr. Patterson responded that the specifications called for delivery of the digital topographic mapping as individual map sheets, each map sheet consisting of a single U.S. Public Land Survey one-quarter section. Mr. Norris then suggested that these map sheet products should be tested in a seamless map environment to determine their transferability to such an environment. Mr. Patterson responded that such testing had already occurred and that it had been demonstrated that the digital maps as called for in the specifications could be moved into a seamless map environment.

Both Mr. Norris and Mr. Shaw noted that both digital map user environments and computer software operating environments were currently evolving toward seamless map environments.

Mr. High noted that Walworth County was currently migrating to a seamless map environment and also to a computer software operating system environment utilizing geodatabase design features and suggested that such an environment might be more appropriate for all MCAMLIS digital mapping. Mr. Shaw noted that user environments and computer software operating system environments that now exist are very different from those that were prevalent at the time the MCAMLIS digital topographic mapping specifications were first developed. Mr. Shaw suggested that it may be desirable to issue a request for proposals from current software system vendors to determine the feasibility and desirability of migrating the MCAMLIS digital maps to an alternative software and production environment. Mr. Patterson noted in this regard that this evaluation was being undertaken already as part of Milwaukee County's GIS needs assessment and that the reports from that project would shortly be available and could be reviewed to determine the feasibility, and perhaps the cost considerations involved, for moving to such an environment.

There being no further questions or comments on the specifications, it was the consensus of the Subcommittee that the specifications be placed on file via the minutes of the meeting (copy of reviewed specifications attached to these minutes).

FORMULATION OF THE SUBCOMMITTEE RECOMMENDATIONS TO THE MCAMLIS STEERING COMMITTEE

Mr. Patterson noted that copies of a suggested report outline for the Subcommittee Report to the MCAMLIS Steering Committee had been distributed to all members of the Subcommittee for review prior to the first Subcommittee meeting.

Mr. Patterson then asked if the Subcommittee wished to follow the suggested report outline provided or if it would prefer to develop an alternative report outline of its own design. When the Subcommittee expressed no desire to create an alternative report outline, Mr. Patterson proceeded to review the suggested report outline with the Subcommittee and to record the Subcommittee's observations and recommendations as follows.

The Utility of the Presently Available MCAMLIS Digital Topographic Mapping Products for their Intended Audience

- The Subcommittee believes that the presently available MCAMLIS digital topographic mapping products do have value for their intended audience, although they did express concern that, with the audience being rather broad, this utility was difficult for the Subcommittee to completely assess.

- The Subcommittee believes that the more current the information contained on the digital topographic maps, the more value the maps have for their intended audience.

- The Subcommittee recommends that the Steering Committee consider the inclusion of six-inch pixel, color, digital orthophotography as one of the products to be obtained from the MCAMLIS digital topographic mapping projects, noting in particular that the digital terrain model needed to orthorectify the photographic images is already included in the MCAMLIS digital topographic

mapping specifications. The Subcommittee believes that the inclusion of a digital orthophotography product as a part of the total digital topographic mapping preparation would increase the utility of any remapping efforts.

- The Subcommittee recommends that the digital map feature content currently contained in the specifications be reviewed to determine if all features currently mapped as digital vectors are needed, particularly if the Steering Committee should decide to incorporate digital orthophotography as a component of the product specifications. The Subcommittee further recommends that the Steering Committee consider appointing an additional Subcommittee or working group to provide guidance to the Steering Committee with respect to those map features which should be represented as digital line work and those features for which the digital orthophotography can be substituted.

The Conformance of the Substantive Map Feature Specifications, the Digital Map File Structure Specifications, and the Digital Operating Environment Specifications to State-of-the-Art Practices

- The Subcommittee believes that the current map accuracy specifications meet all needs for the preparation of the MCAMLIS digital mapping products and recommends that the use of these map accuracy specifications be continued.

- The Subcommittee recommends that the current U.S. Public Land Survey one-quarter section "map sheet" focused delivery of the digital topographic mapping contained in the current specifications be revised to provide for delivery of the digital topographic mapping as a "seamless map" product. The Subcommittee further recommends that all current requirements relating to the preparation of "map sheets" and the delivery of "hard copy" maps be deleted from the current specifications.

- The Subcommittee recommends that that portion of the current specifications requiring delivery of the map products in Integraph/MicroStation DGN format be reviewed, particularly in view of emerging computer software operating environments incorporating geodatabases. The Subcommittee further recommends that this review also carefully consider the translatability to other digital environments of whatever digital operating environment specifications are eventually settled upon by the Steering Committee. The Subcommittee recommends that the Steering Committee consider appointing an additional Subcommittee or working group to provide guidance to the Steering Committee with respect to adopting an alternative operating environment for inclusion in the specifications.

The Need for a Replacement Digital Topographic Mapping Program

- The Subcommittee recommends that the MCAMLIS Steering Committee undertake a Digital Topographic Mapping Replacement Program.

- The Subcommittee further recommends that the Steering Committee evaluate the useful life of the topographic mapping and adopt a suitable map replacement cycle for future annual work programs.

- Finally, the Subcommittee recommends that a replacement digital topographic map program not be initiated until all map content, and operating environment specifications have been evaluated and new digital topographic mapping specifications adopted by the Steering Committee.

At the conclusion of the Subcommittee's discussion concerning the observations and recommendations that the Subcommittee wished to present to the Steering Committee, Mr. Patterson stated that he would complete a report to the Steering Committee and distribute that report in time for the report's consideration at the next Steering Committee meeting scheduled for September 14, 2004.

ADJOURNMENT

There being no further business to come before the Subcommittee, on a motion by Mr. High seconded by Mr. Shaw and carried unanimously, the meeting was adjourned at 4:40 p.m.

Respectfully submitted,

Thomas D. Patterson
MCAMLIS Project Manager

United States Department of the Interior

U. S. GEOLOGICAL SURVEY
Geography Liaison for Wisconsin and Illinois
505 Science Drive
Madison, WI 53711

August 6, 2004

Mr. Thomas D. Patterson
MCAMLIS Project Manager
Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive, PO Box 1607
Waukesha, Wisconsin 53187-1607

Dear Mr. Patterson:

As requested, members of the U.S. Geological Survey (USGS), Eastern Region Geography have reviewed the specifications for the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) digital topographic mapping project for the Lincoln Creek-Southbranch Creek project area. As a result we would like to begin speaking with you about the inclusion of these data in *The National Map (TNM)*. While it is difficult to make exact statements about the data without having worked with it, we believe the data produced to these specifications may be well suited for *TNM*. Below you will find the specific question you have asked and our responses.

1. Would digital topographic maps produced to these specifications be suitable for inclusion in The National Map? More specifically, would digital maps prepared to these specifications not meet, meet, or exceed the requirements for inclusion in The National Map?

   USGS Response: In general, data collected to these specifications would meet the goals of *TNM*. The accuracy, resolution and completeness characteristics of the data are aligned with our goals and we would be interested in establishing a partnership to make these data available. There are some technical details that would need to be addressed. For example, we require centerline data for the definition of roads features. We can not determine from your specification if centerlines exist as a result of this specification. That would need to be remedied before the roads data could be part of *TNM*.

2. As you also know from our discussion, we are currently considering two substantive modifications to these specifications for use in future MCAMLIS topographic mapping projects. The first of these modifications would involve changing the format of the maps from a "map sheet" oriented format to a "seamless map" format. The second modification would involve the creation of six-inch pixel color digital orthophotography as a component part of the preparation of the digital topographic mapping. Would these modifications enhance or not enhance the suitability of digital

material produced under these modified specifications for inclusion in The National Map?

USGS Response: Moving to a seamless environment and inclusion of 6-inch orthoimagery is coincident with the direction of *TNM*. Our goal is to provide seamless coverage of geospatial information for the Nation and your movement in that direction would be a very positive contribution. High resolution orthoimagery is an important component of *TNM* and we would welcome its availability in your area.

3. The detailed specifications call for delivery of the digital mapping in an Intergraph/Micro Station DGN digital file structure and convention environment. Would the production of these products in such a digital environment have any affect, positive or negative, on the potential for inclusion of these digital map products in The National Map?

USGS Response: The solution we encourage for our partners is the establishment of Open GIS Consortium (OGC) compliant web-mapping services by the partners. Using this solution allows you to collect, process and maintain your data in the manner that works best for your business yet allows universal access to the data. We would be happy to work with you as a partner on establishing such a service. Under these circumstances, the production of data in an "Intergraph/Micro Station DGN file structure and convention" would have no affect on its potential for inclusion in *TNM*.

USGS Response: Thank you for providing a copy of the metadata for this project. As you know, *TNM* requires FGDC-compliant metadata and we would recommend including that as part of the specification.

Thank you for the opportunity to meet with you and review these specifications. I believe we have an opportunity to begin a partnership for providing access to these data that will be beneficial to our agencies and the people we serve. Please feel free to contact me with any questions or concerns about this review. I look forward to speaking with you soon.

Sincerely,

Dick Vraga

Dick Vraga
USGS Geography Liaison for Wisconsin and Illinois

MILWAUKEE COUNTY
AUTOMATED MAPPING AND
LAND INFORMATION SYSTEM

c/o Southeastern Wisconsin
Regional Planning Commission
W239 N1812 Rockwood Drive
PO Box 1607
Waukesha, Wisconsin 53187-1607

MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: Thomas D. Patterson, MCAMLIS Project Manager

DATE: July 7, 2004

SUBJECT: **Proposed MCAMLIS Replacement Digital Topographic Mapping Program**

Introduction

Replacement of the older existing digital topographic mapping in Milwaukee County has been discussed by the MCAMLIS Steering Committee on numerous occasions over the past several years. Indeed, such a replacement mapping program was recommended in the MCAMLIS Program Strategic Assessment document adopted by the Steering Committee at its meeting held on October 8, 2002, and again in the update to that Strategic Assessment document adopted by the Steering Committee at its meeting held on June 10, 2003. The major impediment to undertaking such a replacement program has been the inability to secure a sustained stream of funding sufficient to carry out the program over a relatively short period of time. The discovery at the end of 2003 of an amount in excess of $3 million in previously unreported MCAMLIS Program reserve funds now makes the initiation of a replacement digital topographic mapping program feasible. Accordingly, a proposal for a four year program for the replacement of the existing MCAMLIS digital topographic mapping is set forth herein for Steering Committee consideration.

The Need for Replacement of Existing Topographic Mapping

The ages of existing digital topographic mapping are shown on the map attached hereto as Map 1. Approximately 82 percent of the existing digital, topographic mapping is now between ten years and 20 years old. All digital topographic mapping carried out since 1992 has been acquired under the auspices of the MCAMLIS Program and was digitally compiled directly from three-dimensional stereoscopic models constructed from aerial photography acquired specifically for that purpose. All digital topographic mapping prepared prior to 1992 was prepared using older technology and was converted to digital format either by board digitizing or by scanning of hard copy maps, rendering these digital maps moderately more cumbersome to use, but in no way compromising the accuracy of the features portrayed on the maps. Increasingly, comments from users of these maps indicate that the continually advancing age of the mapping adversely affects the map's utility for the users; not only from the standpoint that newer development is absent from these maps, but also from the standpoint that more recent demolitions, public works reconstructions, and private redevelopment projects are not shown.

Proposed Digital Topographic Mapping Replacement Program

A proposed program for the replacement of the older MCAMLIS digital topographic mapping within Milwaukee County is illustrated on the map attached hereto as Map 2. The proposal does not include replacement of the two most recently completed digital topographic mapping projects carried out by the MCAMLIS Steering Committee. These two projects: the 1999 Cudahy – St. Francis – South Milwaukee – General Mitchell International Airport Project and the 2002 Lincoln Creek project are relatively recent and were both carried out using still current "state-of-the-art" map compilation techniques including the preparation of a digital terrain model.

The proposed program would replace all other existing digital topographic mapping over a four year period as identified on Map 2. The estimated cost to carry out this program is approximately $2,700,000, which amount would be spread over a four year period as set forth in the table below.

PROPOSED MCAMLIS REPLACEMENT DIGITAL TOPOGRAPHIC MAPPING PROGRAM

Cost Estimates

First Year	(approximately 47.25 square miles)	$ 607,870
Second Year	(approximately 54.50 square miles)	701,140
Third Year	(approximately 45.50 square miles)	585,360
Fourth Year	(approximately 61.75 square miles)	794,410
	Total	$ 2,688,780

Assumptions: Average cost will be about $12,865/square mile:
$440/square mile for paneling and aerial photography;
$12,000/square mile for mapping;
$425/square mile for quality control and digital file structure review.

The cost of this program is proposed to be funded through the use of the available surplus funds estimated to total about $3,784,000 as of December 31, 2003, along with any additional amounts taken from yearly operating budgets, if needed, as may be necessary to complete the work in a timely fashion.

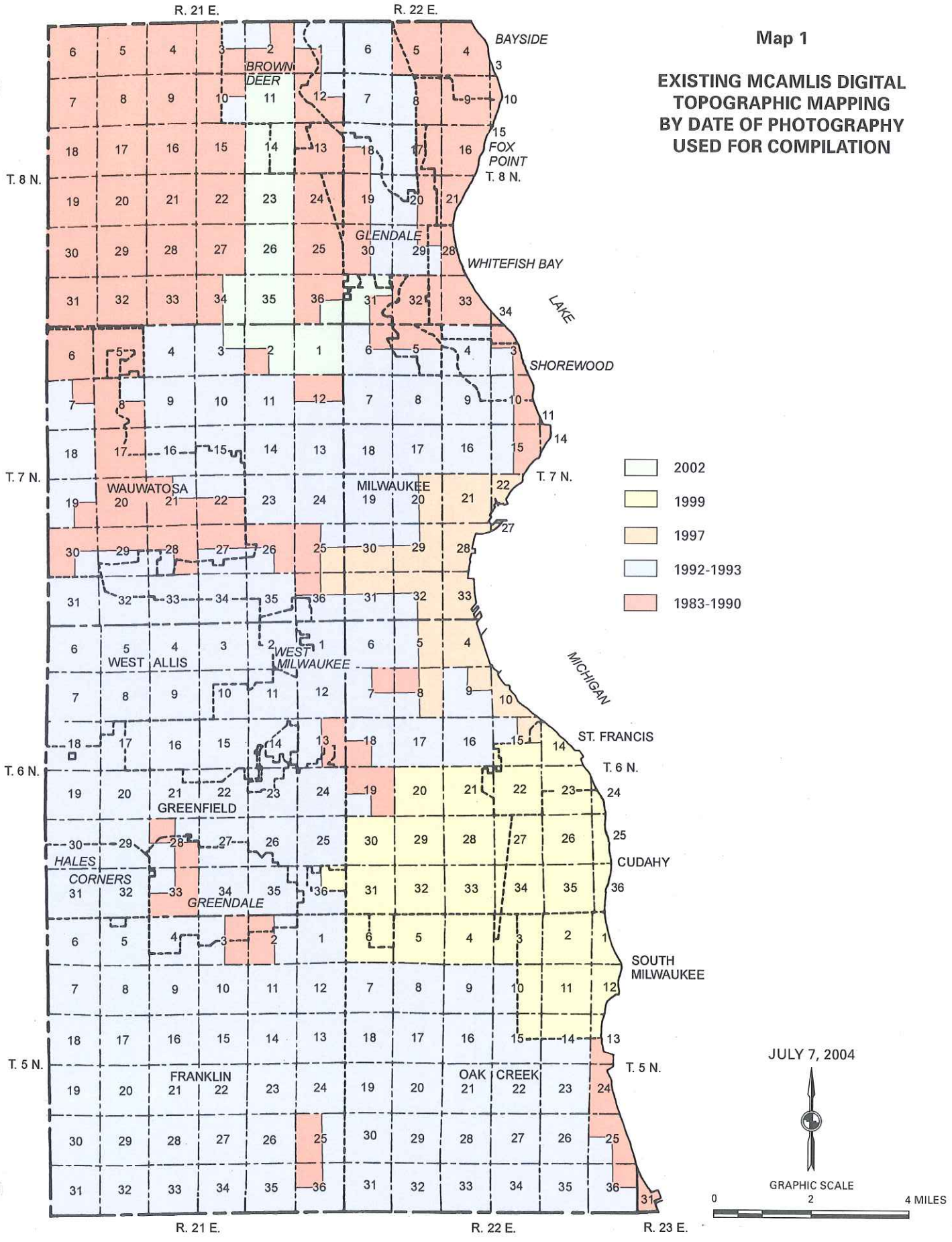
Recommendations

Project staff recommends that the Steering Committee commit to a four year program leading to the preparation of replacement of digital topographic mapping as set forth in the above table and as delineated on Map 2. It is also recommended that the MCAMLIS Steering Committee enter into an agreement, with the Southeastern Wisconsin Regional Planning Commission to acquire the necessary digital topographic mapping over a four year period. The Regional Planning Commission will in turn subcontract with a qualified photogrammetric engineer judged to be capable of completing the desired mapping to previously adopted MCAMLIS digital topographic mapping specifications and standards. Finally, it is recommended that this program begin immediately using aerial photography acquired by AeroMetric, Inc. for the two northern most townships in Milwaukee County during the Spring of 2004. This photography, acquired by AeroMetric, Inc. was designed for producing digital two foot contour interval topographic base maps to MCAMLIS specifications and standards.

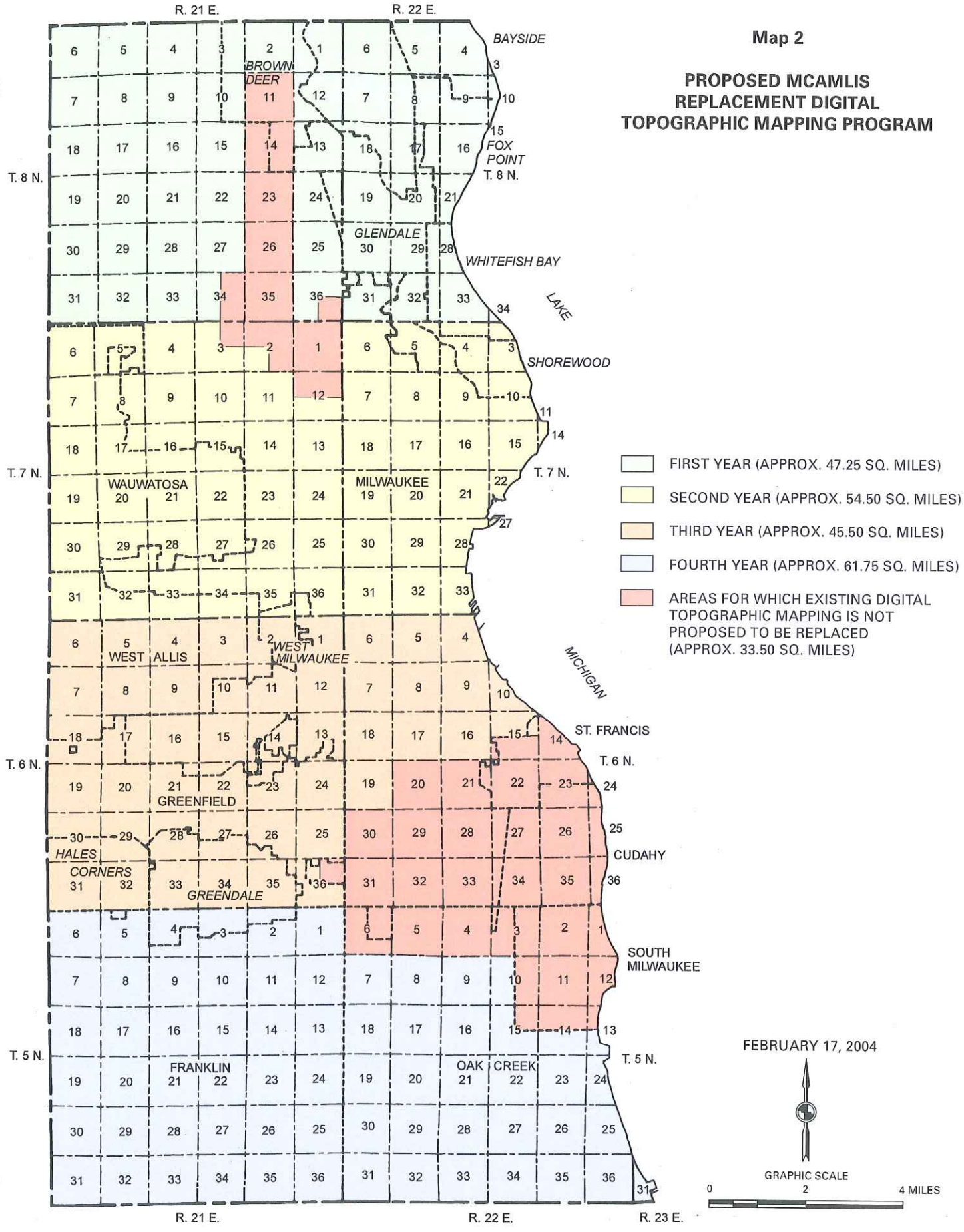
* * *

Map 1

EXISTING MCAMLIS DIGITAL TOPOGRAPHIC MAPPING BY DATE OF PHOTOGRAPHY USED FOR COMPILATION



Source: MCAMLIS Project Manager.



Map 2

PROPOSED MCAMLIS REPLACEMENT DIGITAL TOPOGRAPHIC MAPPING PROGRAM

Source: MCAMLIS Project Manager.

PROPOSED SPECIFICATIONS FOR AERIAL PHOTOGRAPHY, DIGITAL TERRAIN MODELS, AND ONE INCH EQUALS 100 FEET SCALE DIGITAL TOPOGRAPHIC MAPPING— MILWAUKEE COUNTY

I. GENERAL

These specifications set forth the requirements of the Southeastern Wisconsin Regional Planning Commission for photogrammetric mapping services, including aerial photography, digital terrain model files, and digital topographic map preparation. The Engineer shall furnish all labor, materials, and equipment necessary to properly complete the work specified herein.

II. PHOTOGRAPHY

A. General

The Engineer shall perform the necessary flying and photography to provide aerial photographic coverage of an area approximately _____ square miles in extent as shown on the sketch map attached hereto as Exhibit A.

B. Scale

The flight height above the average elevation of the ground shall be such that the negatives will have an average scale of one inch equals 500 feet (1" = 500'). Negatives having a departure from the specified scale by more than 5 percent because of tilt or abrupt changes in flying altitude may be rejected. The photography shall be suitable for the compilation of topographic maps, and the mapping flight height shall not vary from 3,000 feet above mean terrain by more than 5 percent.

C. Overlap

The overlap shall be sufficient to provide full stereoscopic coverage of the specified area. The endlap shall average 63 percent plus or minus 5 percent. Endlap of less than 56 percent or more than 68 percent in one or more negatives shall be cause for rejection of the negatives in which such deficiency or excess occurs unless, within a stereoscopic pair, endlap exceeding 68 percent is necessary in areas of low ground elevation to attain the minimum 58 percent endlap in adjacent areas of high ground elevation. Wherever there is a change in direction of the flight lines, vertical photography on the beginning of a forward section shall endlap the photography of a back section by 100 percent. Any negatives having sidelap of less than 20 percent or more than 55 percent may be rejected.

D. Tilt

Negatives made with the optical axis of the aerial camera in a vertical position are desired. Tilt of any negative by more than three degrees, an average tilt of more than one degree for the entire project, or tilt between any two successive negatives exceeding four degrees may be cause for rejection.

E. Crab

Crab in excess of three degrees may be cause for rejection of the flight line of negatives or portions thereof in which such crab occurs.

F. Quality

The photographs shall be clear and sharp in detail and of average uniform density. They shall be free from clouds, cloud shadows, light streaks, static marks, or other blemishes which would interfere with their intended use. Except upon prior written authorization to the contrary by the Commission, all photography shall be taken in the spring of 2000 when the area to be photographed is free of snow, before foliation, and at such time as to ensure a minimum solar angle of 30 degrees.

G. Camera

The photography shall be exposed with a distortion-free, six-inch focal length, precision aerial mapping camera equipped with a between-the-lens element shutter to produce negatives nine inches by nine inches in size. The Engineer shall furnish the Commission with a precision camera calibration report prepared by the National Bureau of Standards for the camera to be used.

H. Contact Prints

The contact prints from the vertical negatives shall be printed on double-weight, semi-matte paper of suitable contrast.

I. Photo Index

Photo indices shall be prepared by directly photographing on safety base film at a convenient scale the assembly of contact prints from all indexed and evaluated prints used. One photo index reproduced on chronopaque or other approved dimensionally stable base material shall be delivered to the Commission. The photo index shall carry a suitable title, scale, and north point.

J. Delivery of Photography

One set of contact print photographs on double-weight, semi-matte paper at a scale of one inch equals 500 feet (1" = 500') shall be furnished to the Commission upon completion of this contract.

K. Ownership of Negatives

All negatives shall become the property of the Commission and shall be delivered to the Commission upon completion of this contract.

III. DIGITAL TERRAIN MODEL FILES

A. General

The Engineer shall prepare digital three-dimensional topographic map files in the form of Digital Terrain Models of the area to be mapped. These digital files shall be prepared in such a manner as to allow for the preparation of digital topographic mapping meeting National Map Accuracy Standards for two-feet contour interval, one inch equals one hundred feet (1" = 100') scale mapping. The area to be mapped, totaling approximately ___ square miles, is shown on the sketch map attached hereto as Exhibit "A."

If requested, the Engineer shall furnish a letter of certification from a Professional Engineer or Registered Land Surveyor verifying that the digital terrain model files are suitable for the preparation of two-feet interval contour lines meeting National Map Accuracy Standards.

B. Digital Terrain Model File Organization and Specifications

The Engineer shall organize the digital terrain model files such that all break line and random point data included in the files are capable of generating a triangulated irregular network model through the use of appropriate computer software. The digital terrain model files shall be prepared as MicroStation three-dimensional design (3-D DGN) files, and shall be delivered on CD-ROM media. The Engineer shall collaborate with the Commission to establish correct symbolization of the break line and random point data contained in the digital terrain model files.

1. The digital terrain model files shall be organized in such a manner that certain data elements can be selectively retrieved, manipulated, and displayed, either singly or in a combination with other data elements. The categories of data elements within the file structure shall be as listed in

Table 1 attached hereto. Table 1 is similar in format to Table 2, described under Section IV.C.2.a.

2. The digital terrain model files shall depict terrain features as break lines placed at road centerlines, along water courses and shorelines, at the tops of ridges and bottoms of valleys, and at major changes in the slope of terrain. Random points or mass points shall be used to supplement the break lines, roads, and water detail.

3. A continuous, connected roadway network shall be created within the digital terrain model files. These features shall be extracted from appropriate break lines and placed on a separate layer within the digital files in order to form a topologically continuous network of road centerlines. All roads shall be shown with a single centerline representing the center of the road pavement edges at ground elevation. Roads with multiple lanes such as an interstate highway shall also be represented by a single centerline. Entrance and exit ramps to the highway need not be shown as a centerline.

4. A continuous, connected hydrography network shall be created within the digital terrain model files. These features shall be extracted from appropriate break lines and placed on a separate layer within the digital files in order to form a topologically continuous network of drainage or hydrographic features.

   Break lines depicting double line open water features consistently greater than five feet in width such as lakes, ponds, and streams shall be topologically continuous, and shall be capable of forming closed polygon features. Break lines depicting single line water features consistently less than ten feet in width such as streams, watercourses, and drainage ditches shall be continuous, connected segments capable of forming a continuous hydrography network.

   Drainage centerlines shall be created where necessary to form a continuous hydrography network. For example, drainage centerlines shall be created through areas of marsh, swamp, and wetland, and these centerlines shall connect with single line water features in such a way as to form a continuous hydrography network. Similarly, drainage centerlines shall be created as a center line of any double line open water features and connected with single line water features in such a way as to form a continuous hydrography network. Drainage centerlines shall also be created for hidden water features, such as water within a culvert under a road, or water under a

bridge, and connected with single line water features in such a way as to form a continuous hydrography network. All drainage centerline segments that are created for the express purpose of developing the continuous, connected hydrography network shall be uniquely identified by level and color assignment as described in Table 1.

All lines within the continuous roadway network and all lines within the continuous hydrography network shall have common end points between digital terrain model files in order to assure continuity of networks for geographic information system applications.

IV. TOPOGRAPHIC MAPS

A. General

The Engineer shall prepare topographic maps to National Map Accuracy Standards in the form of digital map files and finished hardcopy topographic maps. For the purpose of interpreting these standards within the context of the digital map files, the "publication scale" of these digital maps shall be one inch equals one hundred feet (1" = 100').

The finished hardcopy topographic maps shall be plotted to a scale of one inch equals one hundred feet (1" = 100'). These finished maps shall be prepared in the form of ink tracings or digitally plotted images of the digital map files on dimensionally stable polyester base material having a minimum thickness of 0.004 inch.

The Engineer shall also provide check plots of the topographic maps drawn to a scale of one inch equals one hundred feet (1"= 100'). These check plots, which will be used by the Commission to check the work completed by the Engineer for compliance with the specifications, shall be prepared in the form of ink tracings or digitally plotted images of the digital cartographic map files on vellum, with the image "reverse reading."

The area to be mapped, totaling approximately ___ square miles, is shown on the sketch map attached hereto as Exhibit A.

If requested, the Engineer shall furnish a letter of certification from a Professional Engineer or Registered Land Surveyor verifying that the digital cartographic map files and finished hardcopy maps meet National Map Accuracy Standards at their "publication scale."

B. Data to be Shown

Both the digital map files and the finished maps shall show correctly on each map face the following information:

1. Hypsography by contour lines having a vertical interval of two feet. All contours shall be drawn clear and sharp as continuous solid lines except through structures. Every fifth contour shall be accentuated and numbered. Elevations of saddles, kettles, summits, high points of all crests and low points of all sags in existing roadways, all existing road intersections, and all bridge decks at both ends of the bridge shall be shown as determined photogrammetrically, except where field elevations are available, to the nearest one-quarter contour interval. All contour lines and elevations shall be referenced to National Geodetic Vertical Datum of 1929 as established by the National Geodetic Survey.

2. All planimetric details, such as pavements, curbs, paved sidewalks appurtenant to public streets, highways, and other public ways having a width of five feet or greater, driveways, trails, centerlines of railway tracks, power and telephone line poles and towers, buildings, fences, wooded areas, and other identifiable features on the photography, shall be shown in their correct positions and orientation within the tolerances of these specifications.

3. All hydrographic features, such as marshes, lakes, streams, watercourses, and drainage ditches, shall be shown in their correct positions and orientation within the tolerances of these specifications. Hydrographic features having a width of five feet or greater shall be shown by double lines.

4. All section and quarter-section lines and U. S. Public Land Survey corners as established by field surveys shall be shown in their correct positions and orientation, together with their exact grid lengths and bearings. The material of which the monuments marking said corners are made shall be indicated by symbol and legend, together with the state plane coordinates and bench mark elevations of the corners.

5. A north point based upon grid bearing. The angle between geodetic and grid bearing (theta angle) shall be shown on each map and shall represent the value for the area covered by the

Commission-prepared six-section control survey summary diagram within which the map sheet is located.

6. A combination factor, sea level and scale, shall be given on each sheet for the reduction of measured ground lengths to corresponding grid lengths on the Wisconsin State Plane Coordinate System. The factor shall represent the value for the area covered by the Commission-prepared six-section control survey summary diagram within which the map sheet is located.

7. Grid lines shall be indicated at five-inch intervals and shall conform to the Wisconsin State Plane Coordinate System. Only the intersections of grid lines shall be shown on the completed maps, together with corresponding state plane coordinate values.

8. Such lettering as may be secured from available maps of the area or as may be furnished by the Southeastern Wisconsin Regional Planning Commission relative to the names of salient geographic features. The names of all state and county trunk highways, public streets, and major streams and lakes shall be shown on the maps.

C. Digital Map File Organization and Specifications

The Engineer shall organize the digital map files in such a manner as to provide plotted digital topographic maps similar in appearance to the topographic maps historically prepared for the Southeastern Wisconsin Regional Planning Commission. Among other things, this will require the preparation in digital form of a standard "map sheet" format, including appropriate title and legend information.

The digital map files shall be provided to the Commission in two separate, distinct formats. The first file format, called the "graphic primitive" format, shall represent the digital map data as fundamental, unsymbolized feature information. This format shall be delivered as MicroStation three-dimensional design (3-D DGN) files. All point features shall be encoded with symbols rather than cells. All line features shall be encoded as solid, unsymbolized lines rather than as patterned lines. This file format will provide a portion of the map feature information needed to create a data base.

The second file format, called the "symbolized" format, shall be derived from the first format and shall be used by the Engineer to prepare the plotted topographic maps. All point and line features shall be encoded in the file using the required symbols, cells, patterns, weights, styles, and colors needed to correctly plot the topographic maps. This format shall also be delivered as MicroStation three-dimensional design (3-D DGN) files.

1. The digital map sheets shall be 36 inches by 36 inches in size when plotted at a scale of one inch equals one hundred feet (1" = 100'), and each sheet shall cover an entire U. S. Public Land Survey quarter section. The title block shall contain a graphic scale and the following information: scale, date, type of map, location by county and state, name of the Southeastern Wisconsin Regional Planning Commission, name of the Engineer, and appropriate project and sheet numbers. A north point based upon grid bearing shall be shown. The angle between geodetic and grid bearing (theta angle) shall be shown on each map and shall represent the value for the area covered by the Commission-prepared six-section control survey summary diagram within which the map sheet is located. A combination factor, sea level and scale, shall be given on each sheet for the reduction of measured ground lengths to corresponding grid lengths on the Wisconsin State Plane Coordinate System. The factor shall represent the value for the area covered by the Commission-prepared six-section control survey summary diagram within which the map sheet is located. A certificate shall be included in the title block stating that the map meets National Map Accuracy standards. The title block shall also contain a MCAMLIS copyright statement, including the appropriate copyright symbol (©). The topographic maps shall overlap the adjacent one-quarter sections by 50 feet beyond the section or one-quarter-section lines.

2. The MicroStation three-dimensional design (3-D DGN) digital files shall be organized in such a manner that data elements can be selectively retrieved, manipulated, and displayed, either singly or in combination with other data elements.

    a. The categories of data elements within the file structure shall be as listed in the table attached hereto as Table 2. The table is made up of columns as described below.

    The first column, "Data Element Group/Elements," identifies all data elements that shall be individually retrievable within the digital map file structure, as well as the major data element group to which each element belongs.

The second column, "Type," indicates whether the element will be categorized as a point, line, or text element. Point elements are symbols existing at a single location in the digital file. Line elements may be simple line strings, polylines, arcs, or a combination of these features. Text elements are strings of graphic attribute information existing at a location.

The third column, "Level," indicates the level in the digital file on which elements will be stored. Levels have been assigned from 1 through 34. Within each level are grouped element types that will need to be displayed simultaneously. Each level/color assignment creates a unique identifier for each element type in the digital file.

The fourth column, "Color," indicates the display color for element types stored in the digital file. Colors have been assigned uniquely for all element types existing on a single level. The first element type, in each level, has been assigned a value of 1, with each additional element type on that level being assigned the next sequential color number until all element types on a single level have been assigned.

Any Planimetric Element types not described in this table will be captured using the Other Planimetric Features category provided in this table. Each new element type identified by the Engineer will be assigned a unique sequential level/color combination for all point, line, and text features of the element. Color assignments are valid through color 255 for each level. The Engineer will identify any need for additional levels or colors and notify the Commission. The Engineer will maintain a complete log of assignments detailing the element description, type, level, and color for delivery with the digital files.

For example, when a feature such as a concrete pad is identified by the Engineer and no element type has been previously assigned by the table, the Other Planimetric Features category will be used with assignments of level 27, color 33. The accompanying text string will be assigned level 27, color 34. When the next new element type, such as a large propane tank, is identified, it will be captured using the Other Planimetric Features category with assignments of level 27, color 35, and its accompanying text block will be assigned level 27, color 36. This process will continue until all 255 colors have been exhausted.

The fifth column of the table, "Notes," gives pertinent information regarding an individual element type.

b. Point, line, and area data symbolization and lettering styles and sizes shall be established by the Engineer in such a manner that the maps plotted from the digital files will approach in appearance, insofar as is possible, maps historically prepared for the Southeastern Wisconsin Regional Planning Commission.

MicroStation text justification for a single text string is typically stored as an x,y coordinate for the lower left hand point of the text string. Intergraph text nodes, used as a header for blocks of text strings, are not currently supported by the Commission's binary translator for MicroStation format files. For the purpose of providing a consistent neutral file format, the Engineer will store all text as individual text strings, lower left justified, with no more than 64 characters per string.

Point symbols, lines, and text placed in the digital file should be used to access MicroStation cell and font libraries created by the Engineer for the purpose of generating plotted maps. Sample plots, as well as digital copies of the cell and font libraries, will be provided to the Commission for review and approval prior to the production of any maps. Following approval, any changes to these libraries shall be identified to the Commission with a new digital copy and sample. Any changes to these libraries will be subject to review and approval by the Commission.

Decimal points or periods in text strings shall not be used as substitutes for point symbols on the maps.

c. The Engineer shall provide one complete set of digital topographic map files containing basic unsymbolized map elements. This set of map files will be in the aforementioned "graphic primitive" format. All point features for this set of map files shall be encoded as points rather than as MicroStation cells. All line features shall be shown as solid, unsymbolized lines rather than as patterned lines or line codes. The digital map files in this format shall be provided to the Commission as unsymbolized MicroStation design files (DGN files) with features uniquely identified in accordance with the specifications set forth in Section IV.C.2.a. The map files in this format shall follow the naming convention of

"ttrrssq.grp," where "ttrrssq" identifies that U. S. Public Land Survey township, range, section, and quarter section covered by the digital file, and ".grp" is the extension identifying the file as being in the graphic primitive format.

In the files prepared under this Section, only the following DGN element types will be allowed: lines, line strings, circles, circular arcs, curves, connected strings, shapes, complex shapes, symbols (text elements), and text strings.

d. The Engineer shall also provide to the Commission a complete set of MicroStation design files used to produce the plotted topographic maps. This set of map files will be formatted in the aforementioned "symbolized" format. All point and line features are to be encoded in the files using the required symbols, cells, patterns, weights, styles, and colors needed to correctly plot the topographic maps. All point features shall be symbolized with appropriate Intergraph cells with "dropped status" to represent the point feature as a set of symbolized, graphic elements. All line features shall be shown as solid, unsymbolized lines or symbolized as patterned lines as may be appropriate to correctly plot the topographic maps. Intergraph "line codes" shall not be used as a substitute for patterned lines to create line symbology. The Engineer shall submit the proposed symbolization to be used for all features to the Commission for review and approval as stated in Section IV.C.2.b. The map files in this format shall follow the naming convention of "ttrrssq.sym," where "ttrrssq" identifies the U. S. Public Land Survey township, range, section, and quarter section covered by the digital file, and ".sym" is the extension identifying the files as being in the symbolized format.

In the files prepared under this Section, only the following DGN element types will be allowed: lines, line strings, circles, circular arcs, curves, connected strings, shapes, complex shapes, symbols (text elements), and text strings.

3. Contour lines, land/water contact lines, and similar types of mapped lines shall be digitally encoded in such a manner that their plotted appearance approaches that of traditional drafted maps when plotted at the scale of one inch equals one hundred feet (1" = 100').

Contour lines shall be digitally encoded in the data structure of the digital topographic map files in a manner that parallels their method of compilation and use in traditional analog map

production. That is, contour lines will not be topologically structured or topologically continuous in the digital topographic map files, but rather will exist as discontinuous, independent line segments appropriately identified as set forth in Section IV.B.1, that, when plotted as appropriately symbolized lines, will be subject to interpretation by the map reader in the same manner that this interpretation occurs in the use of analog topographic maps.

4. The digital topographic map files in MicroStation DGN format shall be prepared with the following enhancements:

   a. Hydrography Features

      Water lines depicting double line open water features consistently greater than five feet in width such as lakes, ponds, and streams shall be topologically continuous and shall be capable of forming closed polygon features. Water lines depicting single line water features consistently less than five feet in width such as streams, watercourses, and drainage ditches shall be continuous, connected segments capable of forming a continuous hydrography network.

   b. Transportation Features

      The road features shall be created as the edge of pavement or roadway for a paved or unpaved road. Paved road and unimproved road line segments that are broken or "clipped" for creation of openings for driveways shall be saved and uniquely identified in the digital topographic map files. The combination of paved and unimproved road features and "clipped" paved and unimproved road line segments shall form a continuous, connected road edge without gaps or openings for driveways, and be capable of forming a closed polygon feature.

   c. Hypsometric Features

      The digital topographic map files shall be prepared as MicroStation three dimensional (3-D) DGN files, such that all contour and depression line features contain an elevational attribute or "z" value.

      The contour and depression lines shall be prepared as continuous line segments, interrupted at buildings and other structures where necessary. Portions of the contour and depression line segments that may need to be "clipped" for buildings and the placement of text shall be

separately identified by level and color in the MicroStation DGN file, so that these "clipped" line segments may be displayed with the regular contour and depression line segments to form continuous line features.

d. Clipped Features

Certain features in the digital topographic map files may require that portions of these line segments be trimmed or "clipped" for the placement of other line features or the placement of text. For example, road edges may be clipped for the creation of openings for driveways, and contour lines may be clipped for the placement of text or where contours intersect with building features. As previously mentioned, all clipped features shall be saved and uniquely identified in the digital map files, such that the "clipped" segments can be used in combination with appropriate features to form closed polygon areas or continuous, connected line features. Examples of features that may necessitate the creation of "clipped" line segments include paved and unimproved roads, contour and depression lines, and section and quarter-section lines.

e. Closeable Features

Selected features in the digital topographic map files shall be created in such a way that they are closed and connected line segments and shall be amenable to the formation of closed polygons. Similarly, water lines and shorelines shall be connected such that they are capable of forming polygons for open water features. Finally, features such as paved and unimproved roads and U.S. Public Land Survey System quarter sections—with the addition of appropriate "clipped" line segments—shall be capable of forming closed polygon features.

5. All continuous lines crossing map file boundaries shall have connective points on the appropriate U. S. Public Land Survey section and quarter-section lines in the adjoining files. These points shall have identical x and y values. In addition, all continuous lines crossing map file boundaries shall be "broken" at the section or quarter-section lines. This means that all continuous lines that cross U. S. Public land Survey section or quarter-section lines shall be composed of two or more line segments so that one segment will terminate on the section or quarter-section line and another continuing segment will begin at the identical x,y location on the section or quarter-section line.

6. The Engineer shall deliver both sets of digital topographic and planimetric map files on CD-ROM disk written to ISO Level II specifications. The files shall be placed on the CD-ROM disk in sequential file format using common computer operating system commands. The Engineer shall collaborate with the Commission to establish correct format and procedures for the transfer and delivery of the digital map files on CD-ROM disk. The Engineer shall also provide a hard copy listing of the files on the delivered media.

7. All computer software used by the Engineer in the preparation and transfer of the digital map files shall be capable of maintaining the full mathematical precision of the horizontal and vertical control survey information described under Sections IV.B.4., IV.E.2, and IV.E.3., of this contract. This may require the use of computer software written in double precision.

8. The Wisconsin State Plane Coordinate System, South Zone, shall be utilized as the coordinate system for the encoding of all digital map data elements.

D. Preparation of Finished Topographic Maps

The Engineer shall utilize digital plotting equipment having a minimum resolution of 400 DPI and capable of preparing finished topographic maps that approach in their overall appearance finished topographic maps prepared for the Southeastern Wisconsin Regional Planning Commission by traditional hand drafting techniques. All plotting of the finished topographic maps shall be to a high standard of workmanship. The plotted map sheets shall be 36 inches by 36 inches in size, and each sheet shall cover an entire U. S. Public Land Survey quarter section. The title shall contain a graphic scale and the following information: scale, date, type of map, location by county and state, name of the Southeastern Wisconsin Regional Planning Commission, name of the Engineer, and appropriate project and sheet numbers. The finished topographic maps shall overlap the adjacent one-quarter sections by 50 feet beyond the section or one-quarter-section lines.

The following procedures shall be employed in the development of the finished digital topographic map files and finished hardcopy topographic maps:

1. The Engineer shall provide the vellum check plots of the topographic maps as specified by the Commission.

2. The Commission shall conduct office editing and field checking of the topographic maps.

3. The Commission shall provide to the Engineer annotated paper prints of the topographic maps.

4. The Engineer shall revise the digital map files to reflect the annotations shown on the topographic map prints.

5. The corrected digital map files, together with the annotated prints, shall be provided by the Engineer to the Commission.

6. The digital topographic map files shall be checked by the Commission to determine compliance with the specifications.

7. Should the digital topographic map files be found by the Commission to meet the specifications, the commission shall notify the Engineer to produce and deliver to the Commission the finished topographic maps on polyester film.

8. Should the digital topographic map files be found by the Commission to require further revisions to comply with the specifications, the Commission shall so notify the Engineer.

9. The Engineer shall then follow the procedures noted in paragraph number 4 and subsequent paragraphs to produce and deliver to the Commission the finished digital topographic map files and the finished topographic maps on polyester film.

E. Precision and Accuracy Standards

1. Both the digital map files and the finished hardcopy topographic maps shall be prepared to meet National Map Accuracy Standards at the scale of one inch equals one hundred feet (1"-100'), and a certificate to this effect shall appear on the face of each map sheet.

2. The map projection grid for the digital cartographic map files shall be constructed inside the computer memory through key entry procedures. This means that all Wisconsin State Plane Coordinate System grid interval lines and grid intersection points shall be encoded into the digital map files by means of precision keyboard entry techniques rather than by line digitization methods.

3. Each horizontal control station, section corner, and quarter-section corner contained in the digital map files shall be placed on the map projection grid through key entry of the adjusted coordinates computed for the point. The Commission shall furnish to the Engineer appropriate materials describing the exact x,y location of those features.

4. Ninety percent of all well-defined planimetric features shall be plotted so that their position in the digital map files and on the finished hardcopy topographic maps shall be accurate to within 1/30 of an inch of their true coordinate position and no point shall be more than 1/20 of an inch from its true position.

5. The contours shall faithfully express the relief detail and topographic forms. Ninety percent of the evaluations determined form the solid-line contours of the map shall have an accuracy with respect to true elevation of one-half contour interval, based on a two-foot contour interval and no such elevations shall be in error by more than one contour interval.

6. All spot elevations shown in the digital cartographic map files and hardcopy topographic maps, other than elevations of vertical control stations, shall be shown to the nearest 0.5 foot. Ninety percent of all spot elevations shown shall have an accuracy with respect to true elevation of one-fourth contour interval, based on a two-foot contour interval, and no such elevations shall be in error by more than one-half contour interval.

7. The finished hardcopy topographic maps shall be field checked by the Commission. The Engineer shall furnish instruments and assistance to the Commission for such field checking. The field measurements shall be compared against the map data, and any map sheets that do not conform to National Map Accuracy Standards and the requirements of these specifications shall be corrected by the Engineer to fully meet the specified accuracy.

V. ITEMS TO BE DELIVERED

Upon completion, the Engineer shall deliver to the Southeastern Wisconsin Regional Planning Commission the following items:

A. Two sets of digital map files specified under Section IV.C. herein containing topographic maps of the project area as designated herein. The first set of files shall be in the previously described "graphic primitive" format, and the second set of files shall be in the previously described "symbolized" format. Both sets of files shall be in MicroStation three-dimensional design file (3-D DGN file) format. The MicroStation design files shall be accompanied by a digital file of all point, line, and area symbology used in their preparation ("cell library file"), as well as a paper copy of the MicroStation design file layout ("level list").

B. One set of "reverse reading" digital plots on vellum of the topographic maps of the project area as designated herein suitable for conducting the office editing and field checking.

C. One set of reproducible original plots on dimensionally stable polyester base material of the completed topographic maps of the project area as designated herein.

D. One set of digital terrain model files of the project area as specified herein. These files shall be in MicroStation three-dimensional design file (3-D DGN) format.

E. One photo index as specified under Section II.I. herein.

F. One set of contact print aerial photographs as specified under Section II.J herein.

G. The original aerial photograph negatives specified under Section II.K herein.

VI. DELIVERY DATES

A. Photography

Photography for the entirety of the project area shall be completed in the Spring of 200__. The contact prints and photo indices shall be delivered within 30 days after the photography is completed.

B. Topographic Maps and Digital Map Files

All digital terrain models, finished topographic maps, digital map files, and ancillary materials specified herein shall be delivered on or before _____, 200__.

VII. BASIS OF PAYMENT

The contract price of the work, the lump sum of $_____, shall include all photogrammetric engineering services and all computer programming and computer operation services necessary for the delivery of the complete, finished maps and all other materials and items specified herein. This total contract price shall consist of the lump sum prices listed below for integral portions of the work.

A. Acquisition of aerial photography for an approximately _____ square-mile area as specified herein, including associated field work and photo lab work needed to properly reference the acquired aerial photography to the ground .....$

B. New digital terrain models suitable for the generation of two-feet interval contour lines meeting National Map Accuracy Standards for an approximately _____ square-mile area, including the preparation of the MicroStation DGN format files and supporting engineering services as specified herein .....$

C. New digital topographic mapping for an approximately __-square-mile area at a scale of 1" = 100' from the 1" = 500" aerial photography, including the preparation of the MicroStation DGN format files, finished topographic maps, and supporting engineering services as specified herein .....$_____

Total $_____

The foregoing component prices are provided as a basis for computing any adjustment in the total cost of the contract that may have to be made due to any changes in the scope of work ordered in writing by the Commission during the conduct of the project, and as a basis for computing work progress payments to the Engineer under the project.

It is expressly understood and agreed that in no event will the total compensation and reimbursement to be paid exceed the amount stipulated above for all the service required as specified herein. The Engineer must submit invoices to the Southeastern Wisconsin Regional Planning Commission during

the progress of the work for partial payment on account for work completed and accepted to date. Such invoices shall not be submitted more often than every 30 days. The amount shown on such invoices shall be estimated on the basis of contract prices and the quantity of work completed and accepted by the Southeastern Wisconsin Regional Planning Commission. Such invoices will be checked by the Southeastern Wisconsin Regional Planning Commission and payment made in an amount not to exceed 90 percent of such amount thereof as has been found by the Southeastern Wisconsin Regional Planning Commission to reasonably represent the value of partially completed work, less any amounts previously paid on account. Payment of the 10 percent withheld during progress of the work shall be made upon final approval of the work by the Southeastern Wisconsin Regional Planning Commission.

* * * * *

Table 1

DIGITAL TERRAIN MODEL MAPPING ELEMENTS
1" = 100' SCALE

MICROSTATION DGN FORMAT FILES

Data Element Group/Elements	Type	Level	Color	Notes
Terrain Model Elements				
Mass Points and Breaklines	Line	40	1	All linear data and point data necessary for terrain model
Extracted Elements				
Mass Point Location	Point	31	7	Mass points extracted from Level 40
Roadway Centerlines	Line	11	5	Continuous roadway network extracted from Level 40
Drainage Lines	Line	9	3	Single width water lines extracted from Level 40
Created Drainage Lines	Line	9	5	Drainage centerline segments extracted from Level 40 that are created (e.g., through marshes, lakes, and under bridges) in order to form continuous drainage network

Table 2

MILWAUKEE COUNTY TOPOGRAPHIC MAPPING ELEMENTS
1" = 100' SCALE

MICROSTATION DGN FORMAT FILES

Data Element Group/Elements	Type	Level	Color	Notes
Map Sheet Elements				
Map Border	Line	1	1	Border, Trim Lines
Map Title	Text	1	2	
Map Legend Box	Line	1	3	Map Logo
Map Legend Box Text	Text	1	4	
Graphic Scale	Line	1	5	
Graphic Scale Text	Text	1	6	
North Point	Point	1	7	
North Point Text	Text	1	8	
Map Legend Symbols	Point	1	9	
Map Legend Text	Text	1	10	
Map Index Section Lines	Line	1	11	
Map Index County and Town Lines	Line	1	13	
Map Index City Boundary Lines	Line	1	15	
Map Index Location Box	Line	1	17	
Geodetic and Geographic Reference Elements				
NGS Triangulation Station Location	Point	2	1	See Note (1)
NGS Triangulation Station Text	Text	2	2	See Note (1)
Traverse Station Location	Point	2	3	See Note (1)
Traverse Station Text	Text	2	4	See Note (1)
Photo Center Location	Point	2	5	See Note (1)
Photo Center Text	Text	2	6	See Note (1)
Bench Mark Location	Point	2	7	See Note (1)
Bench Mark Text	Text	2	8	See Note (1)
Wisconsin State Plane Coordinate Grid Intervals	Point	3	1	See Note (2)
Wisconsin State Plane Coordinate Text	Text	3	2	See Note (2)
Wisconsin State Plane Coordinate Grid Intersections	Point	3	3	See Note (1)
U. S. Public Land Survey Corner	Point	4	1	
U. S. Public Land Survey Corner Coordinates	Text	4	2	

Data Element Group/Elements	Type	Level	Color	Notes
Geodetic and Geographic Reference Elements (continued)				
U. S. Public Land Survey Monuments	Point	4	3	
U. S. Public Land Survey Monument Coordinates	Text	4	4	
U. S. Public Land Survey Section Line	Line	5	1	
Clipped Section Line Segment	Line	5	5	
U. S. Public Land Survey Section Bearing/Length	Text	5	2	
U. S. Public Land Survey Quarter-Section Line	Line	5	3	
Clipped Quarter-Section Line Segment	Line	5	7	
U. S. Public Land Survey Quarter-Section Bearing/Length	Text	5	4	
Hydrographic Elements				
Open Water Line	Line	8	1	See Note (3)
Open Water Name Text	Text	8	2	See Note (3)
Open Water Direction Of Flow	Point	8	3	
Single Width Water Line	Line	9	1	See Note (4)
Single Width Water Name Text	Text	9	2	See Note (4)
Marsh Boundary Line	Line	10	1	
Marsh Name Text	Text	10	2	
Marsh Symbol	Point	10	3	
Planimetric Elements				
Road Pavement/Curb Line	Line	11	1	
Road Name Text	Text	11	2	
Road Median/Boulevard Line	Line	11	3	
Clipped Paved Road Line Segment	Line	11	5	
Private Road Pavement/Curb Line	Line	12	1	
Unimproved Road Line	Line	13	1	
Unimproved Road Name Text	Text	13	2	
Clipped Unimproved Road Line Segment	Line	13	3	
Driveway Line (paved)	Line	14	1	
Driveway & Parking Text	Text	14	2	
Driveway (unpaved)	Line	14	3	
Parking (paved)	Line	14	5	
Parking (unpaved)	Line	14	7	
Trail Line	Line	15	1	
Trail Line Text	Text	15	2	

Data Element Group/Elements	Type	Level	Color	Notes
Planimetric Elements (continued)				
Walk Line	Line	16	1	
Walk Line Text	Text	16	2	
Fence Line	Line	17	1	
Pole and Tower Footing	Point	18	1	
Transmission Tower	Line	18	3	Multi-legged Tower
Communications Tower	Line	18	5	Other Large Towers
Power/Telephone Pole Location	Point	19	1	Standard Wood/
Light Pole Location	Point	19	3	Metal/Concrete
Railway Track Centerline	Line	20	1	
Railway Name Text	Text	20	4	
Railway Signal	Point	20	5	
Railway (abandoned)	Line	20	7	
Building Roof/Foundation Outline	Line	21	1	
Building Name Text	Text	21	2	
Ruins Foundation Outline	Line	22	1	
Ruins Name Text	Text	22	2	
Dam Line	Line	23	1	
Dam Name Text	Text	23	2	
Pier Line	Line	23	3	
Pier Name Text	Text	23	4	
Dock Wall Line	Line	23	5	
Dock Wall Name Text	Text	23	6	
Culvert (small)	Point	24	1	
Culvert Line (large)	Line	24	3	
Bridge Deck Line	Line	25	1	
Bridge Wing/Retaining Wall Line	Line	25	3	
Aviation Runway/Taxiway Line (paved)	Line	26	1	
Aviation Runway/Taxiway Name Text	Text	26	2	
Aviation Runway/Taxiway Line (unpaved)	Line	26	3	
Cemetery	Line	27	5	
Cemetery Text	Text	27	6	
Paved Slab	Line	27	7	
Paved Slab Text	Text	27	8	
Open Storage, Pile, U/C	Line	27	9	
Open Storage, Pile, U/C Text	Text	27	10	

Data Element Group/Elements	Type	Level	Color	Notes
Planimetric Elements (continued)				
Pipeline	Line	27	11	
Pipeline Text	Text	27	12	
Overhead Structure	Line	27	15	
Overhead Structure Text	Text	27	16	
Patio, Deck	Line	27	17	
Pool	Line	27	19	
Pool Text	Text	27	20	Letter "P"
Tank, Silo	Line	27	21	
Tank, Silo Text	Text	27	22	
Sign (point)	Point	27	23	
Sign Text	Text	27	24	Letter "S"
Sign Line	Line	27	25	
Substation Structure	Line	27	27	
Substation Text	Text	27	28	
Wall	Line	27	29	
Wall Text	Text	27	30	Letter "W"
Other Planimetric Features		27	33	
Other Planimetric Feature Text	Text	27	34	
Park/Recreation Area Line	Line	32	1	
Park/Recreation Area Text	Text	32	2	
Tree Location	Point	33	1	
Wooded Area Boundary Line	Line	33	3	
Hypsometric Elements				
Accentuated Contour Elevation Line	Line	29	1	
Accentuated Contour Elevation Number	Text	29	2	
Accentuated Contour Depression Line	Line	29	3	
Accentuated Contour Depression Number	Text	29	4	
Text-Clipped Accentuated Contour and Depression Line Segments	Line	29	9	
Building-Clipped Accentuated Contour and Depression Line Segments	Line	29	11	
Accentuated Approx. Contour Elevation Line	Line	29	5	
Accentuated Approx. Contour Elevation Number	Text	29	6	
Accentuated Approx. Contour Depression Line	Line	29	7	
Accentuated Approx. Contour Depression Number	Text	29	8	

Data Element Group/Elements	Type	Level	Color	Notes
Hypsometric Elements (continued)				
Unaccentuated Contour Elevation Line	Line	30	1	
Unaccentuated Contour Depression Line	Line	30	3	
Text-Clipped Unaccentuated Contour and Depression Line Segments	Line	30	9	
Building-Clipped Unaccentuated Contour and Depression Line Segments	Line	30	11	
Accentuated Approx. Contour				
Unaccentuated Approx. Contour Elevation Line	Line	30	5	
Unaccentuated Approx. Contour Depression Line	Line	30	7	
Spot Elevation Location	Point	31	1	
Spot Elevation Value Text	Text	31	2	
Water Surface Elevation Location	Point	31	3	
Water Surface Spot Elevation Value Text	Text	31	4	
U. S. Public Land Survey Corner Elevation	Text	31	6	

NOTES

Note (1): Where elements occur interior to the U. S. Public Land Survey section lines of the area being mapped.

Note (2): Where elements occur exterior to the U. S. Public Land Survey section lines of the area being mapped, and interior to the map sheet border.

Note (3): Depicting open water boundaries (greater than 5' in width) for lakes, ponds, streams, watercourses, and drainage ditches.

Note (4): Depicting water boundaries too narrow to show both edges (less than 5' width) for streams, watercourses, and drainage ditches.

Exhibit A

United States Department of the Interior

U. S. GEOLOGICAL SURVEY
Geography Liaison for Wisconsin and Illinois
505 Science Drive
Madison, WI 53711

August 6, 2004

Mr. Thomas D. Patterson
MCAMLIS Project Manager
Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive, PO Box 1607
Waukesha, Wisconsin 53187-1607

Dear Mr. Patterson:

As requested, members of the U.S. Geological Survey (USGS), Eastern Region Geography have reviewed the specifications for the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) digital topographic mapping project for the Lincoln Creek-Southbranch Creek project area. As a result we would like to begin speaking with you about the inclusion of these data in *The National Map (TNM)*. While it is difficult to make exact statements about the data without having worked with it, we believe the data produced to these specifications may be well suited for *TNM*. Below you will find the specific question you have asked and our responses.

1. Would digital topographic maps produced to these specifications be suitable for inclusion in The National Map? More specifically, would digital maps prepared to these specifications not meet, meet, or exceed the requirements for inclusion in The National Map?

   USGS Response: In general, data collected to these specifications would meet the goals of *TNM*. The accuracy, resolution and completeness characteristics of the data are aligned with our goals and we would be interested in establishing a partnership to make these data available. There are some technical details that would need to be addressed. For example, we require centerline data for the definition of roads features. We can not determine from your specification if centerlines exist as a result of this specification. That would need to be remedied before the roads data could be part of *TNM*.

2. As you also know from our discussion, we are currently considering two substantive modifications to these specifications for use in future MCAMLIS topographic mapping projects. The first of these modifications would involve changing the format of the maps from a "map sheet" oriented format to a "seamless map" format. The second modification would involve the creation of six-inch pixel color digital orthophotography as a component part of the preparation of the digital topographic mapping. Would these modifications enhance or not enhance the suitability of digital

material produced under these modified specifications for inclusion in The National Map?

USGS Response: Moving to a seamless environment and inclusion of 6-inch orthoimagery is coincident with the direction of *TNM*. Our goal is to provide seamless coverage of geospatial information for the Nation and your movement in that direction would be a very positive contribution. High resolution orthoimagery is an important component of *TNM* and we would welcome its availability in your area.

3. The detailed specifications call for delivery of the digital mapping in an Intergraph/Micro Station DGN digital file structure and convention environment. Would the production of these products in such a digital environment have any affect, positive or negative, on the potential for inclusion of these digital map products in The National Map?

USGS Response: The solution we encourage for our partners is the establishment of Open GIS Consortium (OGC) compliant web-mapping services by the partners. Using this solution allows you to collect, process and maintain your data in the manner that works best for your business yet allows universal access to the data. We would be happy to work with you as a partner on establishing such a service. Under these circumstances, the production of data in an "Intergraph/Micro Station DGN file structure and convention" would have no affect on its potential for inclusion in *TNM*.

USGS Response: Thank you for providing a copy of the metadata for this project. As you know, *TNM* requires FGDC-compliant metadata and we would recommend including that as part of the specification.

Thank you for the opportunity to meet with you and review these specifications. I believe we have an opportunity to begin a partnership for providing access to these data that will be beneficial to our agencies and the people we serve. Please feel free to contact me with any questions or concerns about this review. I look forward to speaking with you soon.

Sincerely,

Dick Vraga

Dick Vraga
USGS Geography Liaison for Wisconsin and Illinois

MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM

SUBCOMMITTEE ON TOPOGRAPHIC MAPPING

September 3, 2004

REPORT TO THE MCAMLIS STEERING COMMITTEE

BACKGROUND

At the MCAMLIS Steering Committee meeting held on July 20, 2004, the Committee considered a proposal from project staff to undertake a four-year Digital Topographic Replacement Mapping Program. Among the reasons cited by the staff in making this proposal was the fact that more than 80 percent of the existing digital topographic mapping for Milwaukee County was now more than ten years old. Also noted was the fact that only the two most recent digital topographic mapping projects—the St. Francis-Cudahy-South Milwaukee-General Mitchell International Airport project and the Lincoln Creek-Southbranch Creek project—together representing less than 15 percent of the County's available topographic mapping were completed using current state-of-the art photogrammetric map compilation techniques including the creation of a digital terrain model. Not unimportantly in making this proposal, the project staff had identified the necessary funds to carry out this proposed $2.7 million program.

Following discussion of this proposal by the Committee at the July 20th meeting, the Committee Chairman was asked to create a Subcommittee to provide counsel to the Committee on the need for this program: more specifically, on the utility of the mapping; the conformance of the proposed substantive and digital format specifications to state-of-the-art practices; and the need for the program. Accordingly, the Chairman acted to create the requested Subcommittee on Topographic Mapping.

This report sets forth the comments, observations, and recommendations of the Subcommittee to the full Committee.

MEMBERSHIP OF THE SUBCOMMITTEE

Mr. Timothy R. Bate, P.E. ..... Engineering Planning Manager
Chairman — Milwaukee Metropolitan Sewerage District; and
President, Wisconsin Section,
American Society of Civil Engineers

Mr. Gregory G. High ..... Director, Architectural and Engineering Services
Department of Parks and Public Infrastructure
Milwaukee County

Mr. Rick Norris, P.E. ..... President, Norris and Associates, Inc.
Consulting Engineers

Mr. William C. Shaw ..... GIS Manager, WE Energies

Mr. Timothy J. Thur, P.E. ..... Chief Sewer Design Manager
Environmental Engineering Division
City of Milwaukee

MEETINGS

The first meeting of the Subcommittee on Topographic Mapping was held on Friday, August 13, 2004, in Room 203P of the Milwaukee County Courthouse. Subcommittee members present were: Mr. Bate, Mr. High, Mr. Norris, Mr. Shaw, and Mr. Thur.

Others present were: Ms. Marcia Lindholm, Manager, Central Drafting and Records, City of Milwaukee; and Mr. Thomas D. Patterson, MCAMLIS Project Manager.

In order to provide a common background for the Subcommittee members in their discussions and deliberations, Mr. Patterson presented a short history of the MCAMLIS Program and of that Program's four major initial work efforts. These work efforts were: the completion of a previously existing effort to relocate and monument the United States Public Land Survey (USPLS) corners within Milwaukee County; the completion of a previously existing effort to provide a survey control network for Milwaukee County, utilizing the monumented USPLS corners as stations within this network; a digital topographic mapping program utilizing the completed survey control network for locating these maps accurately to both the surface of the earth and to an appropriate map projection; and a digital real property boundary line map compilation program, these maps constructed as overlays to the digital topographic maps, and, therefore, linked both to the surface of the earth and to the chosen map projection.

In discussing these four initial work efforts, Mr. Patterson stressed the interrelated nature of these individual tasks and the importance of each to the development of a scientifically sound collection of maps and their contribution to the creation of county, municipal, and private utility digital land information systems and public works infrastructure management systems.

The Subcommittee then began, but did not complete, a review and discussion of the proposed MCAMLIS Digital Topographic Replacement Mapping Program as that program had been previously presented to the MCAMLIS Steering Committee at its meeting held on July 20, 2004.

The second meeting of the Subcommittee on Topographic Manning was held on September 2, 2004, also in Room 203P of the Milwaukee County Courthouse. Subcommittee member present were: Mr. Bate, Mr. High, Mr. Norris, Mr. Shaw, and Mr. Thur.

Others present were: Mr. Thomas D. Patterson, MCAMLIS Project Manager; and Mr. Kevin R. White, GIS Supervisor, Architectural and Engineering Services, Department of Parks and Public Infrastructure, Milwaukee County.

The Subcommittee completed its review and discussion of the proposed MCAMLIS Digital Topographic Replacement Mapping Program memorandum. The Subcommittee also reviewed and discussed the proposed specifications for digital topographic mapping that have provided the basis for the two most recently completed MCAMLIS digital topographic mapping projects. These specifications were intended by project staff for use in the previously identified MCAMLIS Digital Topographic Replacement Mapping Program.

COMMENTS AND RECOMMENDATIONS

On the basis of the review and discussion of the above identified material and after deliberating on the intent and perceived utility of the proposed digital topographic replacement mapping program, this Subcommittee offers the following comments, observations, and recommendations to the MCAMLIS Steering Committee.

The Utility of the Presently Available MCAMLIS Digital Topographic Mapping Products for their Intended Audience

- The Subcommittee believes that the presently available MCAMLIS digital topographic mapping products do have value for their intended audience, although they did express concern that, with the audience being rather broad, this utility was difficult for the Subcommittee to completely assess.

- The Subcommittee believes that the more current the information contained on the digital topographic maps, the more value the maps have for their intended audience.

- The Subcommittee recommends that the Steering Committee consider the inclusion of six-inch pixel, color, digital orthophotography as one of the products to be obtained from the MCAMLIS digital topographic mapping projects, noting in particular that the digital terrain model needed to orthorectify the photographic images is already included in the MCAMLIS digital topographic mapping specifications. The Subcommittee believes that the inclusion of a digital orthophotography product as a part of the total digital topographic mapping preparation would increase the utility of any remapping efforts.

- The Subcommittee recommends that the digital map feature content currently contained in the specifications be reviewed to determine if all features currently mapped as digital vectors are needed, particularly if the Steering Committee should decide to incorporate digital orthophotography as a component of the product specifications. The Subcommittee further recommends that the Steering Committee consider appointing an additional Subcommittee or working group to provide guidance to the Steering Committee with respect to those map features which should be represented as digital line work and those features for which the digital orthophotography can be substituted.

The Conformance of the Substantive Map Feature Specifications, the Digital Map File Structure Specifications, and the Digital Operating Environment Specifications to State-of-the-Art Practices

- The Subcommittee believes that the current map accuracy specifications meet all needs for the preparation of the MCAMLIS digital mapping products and recommends that the use of these map accuracy specifications be continued.

- The Subcommittee recommends that the current U.S. Public Land Survey one-quarter section "map sheet" focused delivery of the digital topographic mapping contained in the current specifications be revised to provide for delivery of the digital topographic mapping as a "seamless map" product. The Subcommittee further recommends that all current requirements relating to the preparation of "map sheets" and the delivery of "hard copy" maps be deleted from the current specifications.

- The Subcommittee recommends that that portion of the current specifications requiring delivery of the map products in Integraph/MicroStation DGN format be reviewed, particularly in view of emerging computer software operating environments incorporating geodatabases. The Subcommittee further recommends that this review also carefully consider the translatability to other digital environments of whatever digital operating environment specifications are eventually settled upon by the Steering

Committee. The Subcommittee recommends that the Steering Committee consider appointing an additional Subcommittee or working group to provide guidance to the Steering Committee with respect to adopting an alternative operating environment for inclusion in the specifications.

The Need for a Replacement Digital Topographic Mapping Program

- The Subcommittee recommends that the MCAMLIS Steering Committee undertake a Digital Topographic Mapping Replacement Program.

- The Subcommittee further recommends that the Steering Committee evaluate the useful life of the topographic mapping and adopt a suitable map replacement cycle for future annual work programs.

- Finally, the Subcommittee recommends that a replacement digital topographic map program not be initiated until all map content, and operating environment specifications have been evaluated and new digital topographic mapping specifications adopted by the Steering Committee.

TDP/lgh
#98105 V1 - MCAMLIS Report To Committee

MILWAUKEE COUNTY
AUTOMATED MAPPING AND
LAND INFORMATION SYSTEM

c/o Southeastern Wisconsin
Regional Planning Commission
W239 N1812 Rockwood Drive
PO Box 1607
Waukesha, Wisconsin 53187-1607

MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: Thomas D. Patterson
MCAMLIS Project Manager

DATE: July 12, 2004

SUBJECT: **PROPOSAL FOR THE MCAMLIS PROGRAM TO SUPPLY PARTIAL FUNDING SUPPORT TO INITIATE THE REGIONAL WATER SUPPLY SYSTEM PLAN**

Introduction

In September of 2002, the Southeastern Wisconsin Regional Planning Commission at the request of several of its constituent counties and municipalities issued a document, *Regional Water Supply Planning Program Prospectus,* identifying eight factors contributing to the urgent need for the preparation of a Regional Water Supply Plan for the Southeastern Wisconsin Region, including Milwaukee County. These factors are:

1. Constraints on the use of Lake Michigan Water
2. Increasing demand for water west of the subcontinental divide
3. Underutilization of existing Lake Michigan water treatment plant capacity
4. The need to address groundwater quality concerns
5. The need to coordinate public and private water supply planning efforts
6. The need to coordinate water supply system planning with land use, transportation, sanitary sewerage, park and open space, and natural resource protection planning
7. The need to address growing concerns over the security of the water supply facilities of the region
8. Statutory planning requirement

The preparation of the regional water supply system plan recommended by the Prospectus was envisioned as being carried out by the Regional Planning Commission staff on behalf of the seven Southeastern Wisconsin counties, including Milwaukee County.

Statutory Planning Requirement

The State Legislature in 1999 enacted legislation, which revised and expanded municipal, county, and regional planning requirements. Specifically, Section 66.1001 of the *Wisconsin Statutes* requires that the comprehensive plan for the development of a region, county, or local unit of government, as adopted or

amended under Section 66.0309 of the *Wisconsin Statues*, must consist of at least nine elements. Two of those nine elements, in effect, require the preparation of a regional water supply plan. One of the nine elements referenced in the new State legislation is an agricultural, natural, and cultural resources element. This element must address, among other considerations, the effective management of ground and surface waters within the planning area.

Another one of those nine elements is a utilities and community facilities element, an element that must address among other considerations, water supply. The element must describe the location, use, and capacity of existing water supply facilities; provide forecasts of the need for the rehabilitation and expansion of existing water supply facilities; and for the creation of new facilities.

Meeting the letter of the new planning legislation will require the Regional Planning Commission to prepare a water supply plan for the Southeastern Wisconsin Region. The Statues implicitly envision such a regional water supply plan as a framework plan within which county and municipal water supply planning can proceed in a sound and efficient manner.

Relationship of the Section 66.1001 Planning Requirement to the Wisconsin Land Information Program

The emphasis of the Section 61.1001 legislation is on the preparation and adoption of regional, County and local comprehensive plans; the emphasis of the Wisconsin Land Information Program is on the modernization of land records. However, there is substantial subject matter overlap between the two programs. More specifically overlap occurs in at least the content areas of housing; transportation; utilities and community facilities; agricultural, natural, and cultural resources; land use; and intergovernmental cooperation. Given the degree of interrelationship between subject matter in these two programs, there are opportunities for Milwaukee County to pursue the development of information and maps that contribute to the implementation of both programs. The regional water supply system plan is such a program and participation by the County and the MCAMLIS Steering Committee would be responsive, in part, to the changing gubernatorial and legislative priorities manifested in recent biannual budgets as fee collections are transferred from local land records modernization support to local comprehensive planning support.

The completion of the regional water supply system plan would fulfill a portion of Milwaukee County's requirements under Section 66.1001, *Wisconsin Statues*, and would further provide important information and maps useful to Milwaukee County municipalities in meeting their requirements under this same legislation. Importantly, it would serve to also create information useful in the implementation of Milwaukee County's Land Records Modernization Plan, specifically in the areas of utilities infrastructure, natural resources, and intergovernmental cooperation. In this respect, the regional water supply plan would be in conformance with and would contribute toward the implementation of the adopted Milwaukee County Land Records Modernization Plan.

Funding Plan

At the meeting of the Regional Planning Commission held on March 20, 2003, the Prospectus was approved and a funding formula allocating the study costs to the seven counties comprising the Southeastern Wisconsin Region on the basis of equalized real property values was adopted. This funding formula is set forth in the table below.

FUNDING ALLOCATIONS FOR SOUTHEASTERN WISCONSIN REGIONAL WATER SUPPLY PLANNING PROGRAM

County	Local Cost Prorated to Counties Based Upon Equalized Property Value		
	Percent	Amount	Cost per Year for Three Years
Kenosha	7.54	$ 55,136	$ 18,380
Milwaukee	35.80	261,787	87,262
Ozaukee	6.38	46,654	15,550
Racine	8.22	60,109	20,035
Walworth	6.94	50,749	16,916
Washington	7.21	52,723	17,574
Waukesha	27.91	204,091	68,030
Total	100.00	$731,248	$243,747

Under the provisions of this adopted funding formula, Milwaukee County would be asked to supply $261,787 over a three year period as its contribution towards completion of the Regional Water Supply Planning Program, or $87,262 annually. The seven counties, in caucusing with respect to the manner in which to fund the Regional Water Supply Planning Program, determined that they did not want this planning effort funded in the traditional manner, that is through the tax levy funding collected annually by the SEWRPC; there already being numerous other demands upon this source of funding. Rather, through their SEWRPC representatives the counties jointly determined that each county should examine its own resources and secure its share of the required funding from a source of its own choosing. With respect to Milwaukee County, County Executive Walker has indicated, through his staff, that the Milwaukee County portion of the required funding should be provided through the MCAMLIS annual operating budget rather than through tax levy funds.

Recommendations

It is recommended that the MCAMLIS Steering Committee, on behalf of Milwaukee County, participate in the Regional Water Supply System Plan preparation effort as set forth in the SEWRPC document *Regional Water Supply Planning Program Prospectus*. It is further recommended that the MCAMLIS Steering Committee act to commit $87,262 annually over a three year period as Milwaukee County's requested funding portion for completion of the plan. A proposed Agreement to carry out these recommendations is attached hereto for review.

Finally, it is recommended that the MCAMLIS Steering Committee direct project staff to secure the execution of the attached Agreement on behalf of SEWRPC and the MCAMLIS Steering Committee; secure the required review of this Agreement by the Milwaukee Corporation Counsel, the Milwaukee County Risk Manager, and the Milwaukee County DBD Director and return the fully executed Agreement to the SEWRPC for initiation of the work called for under the Agreement.

PCE/TDP/lgh
#97171 v1 - MCAMLIS Regional Water Supply Plan Funding

AGREEMENT

THIS AGREEMENT, entered into this ____ day of _____, 2004, by and between the Southeastern Wisconsin Regional Planning Commission (hereinafter referred to as the "Commission"); and the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee (hereinafter referred to as the "Steering Committee").

WITNESSETH:

WHEREAS, the Commission is authorized by Section 66.0309 of the Wisconsin Statutes to make studies and prepare plans for, and to provide advisory services to local governments, and to act as a coordinating agency for planning activities within its jurisdictional area; and

WHEREAS, by Resolution No. 88-379, the Milwaukee County Board of Supervisors requested the Southeastern Wisconsin Regional Planning Commission to conduct a feasibility study pertaining to an automated mapping and land information system; and

WHEREAS, the requested feasibility study was completed and is documented in SEWRPC Community Assistance Planning Report No. 177, Feasibility Study for a Milwaukee County Automated Mapping and Land Information System, published in October 1989; and

WHEREAS, by resolution adopted on November 8, 1990, the Milwaukee County Board of Supervisors authorized the execution of a Cooperative Agreement between Milwaukee County and the public and private utilities serving Milwaukee County, which Cooperative Agreement created a public-private partnership to implement the proposed Milwaukee County automated mapping and land information system, whereby the County and the utilities involved agreed to jointly fund the development of the Milwaukee County automated mapping and land information system; and

WHEREAS, the aforementioned Cooperative Agreement further created a Steering Committee to provide oversight in the implementation of the Milwaukee County automated mapping and land information system and delegated to the Steering Committee full responsibility for all policy matters relating to the conduct of the work program, including proposed contracts and specifications, the selection of contractors, and interaction with the State of Wisconsin Land Information Program; and

WHEREAS, the Commission adopted the *Regional Water Supply Planning Program Prospectus* in September of 2002; and

WHEREAS, the adopted *Regional Water Supply Planning Program Prospectus* calls for the fiscal participation of Milwaukee County in conjunction with the other six counties constituting the Southeastern Wisconsin Regional Planning area; and

WHEREAS, the completion of a Regional Water System Plan would be in conformance with and would serve to implement Milwaukee County's adopted Land Records Modernization Plan; and

WHEREAS, Sections 66.0309(12)(b) and 66.0301 of the Wisconsin Statutes authorize the Commission to enter into contracts with local units of government and their agents to make and implement studies and plans, and to otherwise provide advice and services.

NOW, THEREFORE, in consideration of these premises and of their mutual and dependent promises and agreements, the parties hereto contract and agree as follows:

I. Scope of Services

The Commission, working in conjunction with Milwaukee County and the other six counties within the Southeastern Wisconsin Regional Planning area, will complete the Regional Water System Supply Plan as set forth in the *Regional Water Supply Planning Program Prospectus,* dated September, 2002.

II. Compensation

The Steering Committee will provide the amount of $261,787 as Milwaukee County's portion of the cost of preparing this plan.

III. Method of Compensation

The total amount of compensation of $261,787 shall be paid to the Commission in the form of three annual installments as follows:

2004	$87,262
2005	$87,262
2006	$87,263

IV. Timing

The work to be performed under this Agreement shall be completed within 36 months of initiation of the project by the SEWRPC.

V. Indemnity

Except for acts done or taken at the direction of or pursuant to the Steering Committee policy or procedures, the Commission agrees to the fullest extent permitted by law, to indemnify, defend, and hold harmless, the Steering Committee, and its agents, officers, and employees from and against all loss or expense including costs and attorney's fees by reason of statutory benefits under Worker Compensation Laws, and/or liability for damages including suits at law or in equity, caused by any wrongful, intentional, or negligent act or omission of the Commission, or its agents which may arise out of, or are connected with, the activities covered by this Agreement.

VI. Insurance

The Commission, as an agency of the State, is self-funded for liability under Section 893.82 and Section 895.46(1) of the Wisconsin Statutes. As a result, such protection as is afforded under respective Wisconsin Statutes, is applicable to officers, employees, and agents while acting within the scope of their employment or agency. Since this is statutory indemnification, there is no liability policy as such that can extend protection to any other.

VII. Records and Audits

The Commission shall allow Milwaukee County, the Milwaukee County Department of Audit, or any other party the Milwaukee County may name, when and as they demand, to audit, examine and make copies of, excerpts or transcripts from any records or other information directly relating to matters under this Agreement. Any subcontracting by the

Commission in performing the duties described under this contract shall subject the subcontractor and/or associates to the same audit terms and conditions as the Commission. The Commission (or any subcontractor) shall maintain and make available to the Milwaukee County aforementioned audit information for no less than three years after the conclusion of each contract term.

VIII. Independent Contractor

Nothing contained in this Agreement shall constitute or be construed to create a partnership or joint venture between Milwaukee County or its successors or assigns; the Steering Committee or its successors or assigns; and the Commission or its successors or assigns. In entering into this Agreement, and in acting in compliance herewith, the Commission is at all times acting and performing as an independent contractor, duly authorized to perform the acts required of it hereunder.

IX. Authorization

The Steering Committee approved the project that is the subject of this Agreement by action taken at a regular meeting held on July 20, 2004.

IN WITNESS WHEREOF, the Commission and the Steering Committee have executed this Agreement, as of the date first above written.

ATTESTING WITNESS

By_____
Philip C. Evenson
Deputy Secretary

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

By_____
Thomas H. Buestrin
Chairman

ATTESTING WITNESS

By_____
Thomas D. Patterson
MCAMLIS Project Manager

MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM STEERING COMMITTEE

By_____
Kurt W. Bauer
Chairman

APPROVED AS TO FORM

_____
William J. Domina (Date)
Milwaukee County Corporation Counsel

REVIEWED AS TO INDEMNIFICATION AND INSURANCE

_____
John R. Rath (Date)
Milwaukee County Department of Risk Management

APPROVED AS TO CHAPTER 42 DBE PROVISIONS

_____
Freida F. Webb (Date)
Milwaukee County DBD Director

PCE/TDP/lgh
#96996 v1 - MCAMLIS agreement --

MILWAUKEE COUNTY

AUTOMATED MAPPING AND

LAND INFORMATION SYSTEM

c/o Southeastern Wisconsin
Regional Planning Commission
W239 N1812 Rockwood Drive
PO Box 1607
Waukesha, Wisconsin 53187-1607

MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: Thomas D. Patterson
MCAMLIS Project Manager

DATE: July 9, 2004

SUBJECT: **USE OF MCAMLIS COPYRIGHTED DIGITAL MAPPING MATERIALS ON MUNICIPAL WEBSITES**

Introduction

At the November 18, 2003 MCAMLIS Steering Committee Meeting, Mr. John Bennett, City Engineer, City of Franklin and also the Intergovernmental Cooperation Council of Milwaukee County representative to the MCAMLIS Steering Committee, requested that the agenda for the following MCAMLIS Steering Committee meeting include a discussion item that would serve to identify and clarify any restrictions or conditions established by MCAMLIS Steering policies on the use of copyrighted MCAMLIS digital mapping materials on municipal websites. He noted in this regard that the City of Franklin had recently established a municipal website and that he wanted to be sure that the manner in which the City was using the MCAMLIS digital mapping materials on that website did not violate any of the policies established by the MCAMLIS Steering Committee for such use. This memorandum has been prepared by project staff in response to Mr. Bennett's request.

Background

During the early part of the MCAMLIS Program, the Steering Committee took action to copyright the MCAMLIS digital mapping materials. Ownership of the copyright was vested in a sub-committee created for the purpose of handling the copyright. Initial action taken by the Steering Committee designated the digital topographic maps and the digital real property boundary line maps as copyrighted material. Later, the Steering Committee acted to also include the MCAMLIS digital street and building address data bases as copyrighted materials.

Conditions and guidelines for the use of these copyrighted digital mapping materials were originally formulated in consultation with Mr. Carl R. Schwartz, an intellectual property attorney with the firm of Quarles and Brady, here in Milwaukee. A copy of guidelines, as adopted by the Steering Committee on October 17, 1995 and amended on March 12, 1996, July 9, 1996, and January 28, 1997, is attached hereto. Any municipal or other user of the MCAMLIS digital mapping materials must first execute a License Agreement -- Exhibit C in the Guidelines -- with the MCAMLIS Steering Committee in order to hold and use these materials. The specific conditions under which these materials may be held and used are set forth in Exhibit C.

The language of the License Agreement -- Exhibit C -- essentially states that the Licensee understands that copyrighted materials are being provided to the Licensee and that the Licensee agrees to treat the provided material in accordance with the general principles of intellectual property law as protected by the copyright. More specifically, this means that the Licensee may not redistribute the provided digital mapping materials or any extracted subset of these materials to any third party. The Licensee is also required to take specific action to insure that the digital media upon which the MCAMLIS digital mapping materials are kept are protected from access in their digital form by unauthorized users.

In the succeeding years since these guidelines were originally adopted by the Steering Committee, several informal policies have also been established, sometimes in consultation with Mr. Schwartz concerning additional permitted uses with the MCAMLIS digital mapping materials. Perhaps most prominent among these additional authorized uses is the implicit permission that has since been given to licensed users to provide access to these materials to consultants working under contract to the Licensee for work being done on behalf of the Licensee provided that the Licensee informs the consultant of the restrictions upon the use of the copyrighted MCAMLIS digital mapping materials and that the use of these materials is restricted to the Licensee's work. It is important to note perhaps in this regard, that this policy was established by consensus of the Steering Committee members over the advice of Mr. Schwartz. Additional informal policy that has become convention through practice has been to permit Licensees to exchange copyrighted MCAMLIS digital mapping materials between and among themselves.

<u>General Guidelines for Use of Copyrighted MCAMLIS Digital Mapping Materials on Municipal Websites</u>

In order to adhere to the intent of intellectual property law and to the specifics of the MCAMLIS License Agreement, the posting of MCAMLIS digital mapping materials on municipal websites should be carried out in such a manner that these materials are "pictures" only. The digital files that produce these pictures should not be accessible by any viewer of the picture over the Internet or over some other form of electronic communication. This stricture applies not only to the digital vector graphic files, but also to any rasterized image files created from the vector files. The manner in which this protection is provided is the responsibility of the municipality, but may be provided by such means as fire walls or password protected files. The use of the MCAMLIS digital mapping materials to create hard copy images over electronic communication lines is however, a permitted use of the MCAMLIS digital mapping materials.

TDP/lgh
#97181 v1 - MCAMLIS-Digital Mapping Materials on Website

Enclosure

MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM

DATA REQUISITION AND DISTRIBUTION GUIDELINES

BACKGROUND

The Milwaukee County Automated Mapping and Land Information System (MCAMLIS) is a public-private consortium begun in 1990 by and between Milwaukee County, the Milwaukee Metropolitan Sewerage District, AMERITECH, the Wisconsin Electric Power Company, and the Wisconsin Gas Company. A Steering Committee, comprised of representatives from each of the above entities plus representatives from the City of Milwaukee and the Intergovernmental Cooperation Council of Milwaukee County oversees all activities of the consortium.

MCAMLIS was formed to develop and maintain the automated mapping base essential for the creation of a modernized land information system for Milwaukee County. In so doing, MCAMLIS is overseeing implementation of the Milwaukee County land records modernization plan set forth in the Southeastern Wisconsin Regional Planning Commission's (SEWRPC) Community Assistance Planning Report No. 177, Feasibility Study for a Milwaukee County Automated Mapping and Land Information System. This plan, published in October 1989, was formally adopted by the Milwaukee County Board of Supervisors on February 15, 1990, and was approved by the Wisconsin Land Information Board on January 7, 1991. The mapping effort detailed in the County plan builds upon historic, coordinated base mapping efforts carried out by Milwaukee County, the Milwaukee Metropolitan Sewerage District, some of the cities and villages in the County, and the SEWRPC.

In December 1993, the Steering Committee executed a formal License Agreement pertaining to matters of copyright ownership and use of MCAMLIS derived data. With respect to mapping products, the License Agreement distinguishes between hard copy and digital mapped materials. Under the License Agreement, the Steering Committee has taken copyright title to all hard copy maps proposed under implementation of the adopted County plan. A Subcommittee of the Steering Committee, comprised of representatives of AMERITECH, the Wisconsin Electric Power Company, and the Wisconsin Gas Company, holds copyright title to the digital mapped materials derived from the MCAMLIS work program.

As refined in an implementation study completed in 1991, the MCAMLIS work program consists of the following:

- The completion of the location and remonumentation of all U. S. Public Land Survey corners in the County, including the centers of the sections.

- The completion of high-order horizontal and vertical control surveys to establish the State Plane Coordinates and elevations of the U. S. Public Land Survey corners.

- The completion of large-scale topographic base maps in hard copy and digital form at a scale of one inch equals 100 feet with two-foot contour intervals.

- The completion of companion cadastral maps to the topographic maps in hard copy and digital form at a scale of one inch equals 100 feet providing detailed information on the location and configuration of all real property boundaries, including the boundaries of all streets and public ways and other public land holdings; and assigning a parcel identification number (tax key number) to each ownership parcel to enable the linking of geographic with nongeographic data files.

- Street address data for all parcels in Milwaukee County.

All MCAMLIS mapping products are based upon the Wisconsin State Plane Coordinate System, South Zone (North American Datum of 1927) and referenced to the National Geodetic Vertical Datum of 1929. The automated base maps for the entire County are expected to be completed in December 1997.[1]

DATA SHARING POLICY GUIDELINES AND PROCEDURES

As noted above, the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) program was created in response to the need for the development of an automated mapping base for use by Milwaukee County, the local units of government in Milwaukee County, and the private utilities comprising the Sub-committee of the MCAMLIS Steering Committee. At the outset, it was recognized that an infusion of monetary resources from the private sector was necessary to create an automated mapping base for the County in a timely fashion. In response to this need, the Wisconsin Gas Company, the Wisconsin Electric Power Company, and AMERITECH (formerly Wisconsin Bell) invested significant private capital in the MCAMLIS program.

In order to protect their investments, the private utility members of MCAMLIS have been granted the MCAMLIS copyright to the mapping base in its digital form. Nevertheless, the overall goal of the MCAMLIS program has been, and will continue to be, the construction of the automated mapping system that is consistent with the standards specified in the County plan, and to make the end products created as a result of the MCAMLIS program available to the widest possible range of users in a fair and efficient manner. Consistent with this cooperative spirit, the utilities holding the copyright to MCAMLIS digital data have agreed that monies generated as a result of the sale of MCAMLIS derived data to commercial entities--other than those commercial entities requesting data for non-commercial, internal use--are to be returned to the MCAMLIS budget, and used in the continued development of the MCAMLIS automated mapping base. The MCAMLIS program is not, and was not intended to be, a for profit venture. Accordingly, the Data Requisition and Distribution Guidelines presented herein are intended to embody a spirit of fair and reasonable access to the MCAMLIS data base.

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[1]Excepted from this schedule is the completion to MCAMLIS digital mapping standards and format of cadastral maps for 355 U. S. Public Land Survey quarter sections lying wholly within the City of Milwaukee. The City of Milwaukee is expected to take steps to ensure that its digital cadastral maps fully meet MCAMLIS technical standards, including a topological structure. These maps, however, will have a different hardcopy format than the MCAMLIS maps and a different electronic data structure as well. Also excepted from this schedule are street address files.

The MCAMLIS Steering Committee and its Subcommittee have formulated the following policies attendant to the distribution and use of the copyrighted mapped data developed under the MCAMLIS program.

Accommodation of Requests

All requests for MCAMLIS data shall be made through the MCAMLIS Project Manager. By contract, the MCAMLIS Project Manager is an employee of the Southeastern Wisconsin Regional Planning Commission assigned by the Commission to perform this function. The MCAMLIS Project Manager may be contacted as follows:

MCAMLIS Project Manager
c/o Southeastern Wisconsin Regional Planning Commission
916 N. East Avenue
P. O. Box 1607
Waukesha, Wisconsin 53187-1607
Telephone: (414) 547-6721
Facsimile: (414) 547-1103

Distribution and Use of Hard Copy Materials

It is the policy of the MCAMLIS Steering Committee to make available all MCAMLIS products in hard copy form at the cost of reproduction and distribution. This includes records of control survey stations and control survey summary diagrams, as well as the copyrighted topographic and cadastral maps. Hard copies of any of these materials may be ordered directly from the MCAMLIS Project Manager. A cost schedule for hard copy products, intended to cover the costs of reproduction, handling, and distribution, is attached as Exhibit A. All monies received by the MCAMLIS Project Manager under this section shall be retained by the SEWRPC as reimbursement for expenses incurred.

Any party obtaining hard copies of MCAMLIS copyrighted mapped data should be aware that unauthorized reproduction of the maps for use by others and/or conversion of the maps to electronic form is expressly prohibited and would constitute a copyright violation. Any party obtaining hard copy MCAMLIS copyrighted maps may use those maps to perform any of that party's functions and may incorporate those maps in reports and other published works prepared by or for that party.

Distribution and Use of Digital Materials

The Steering Committee and the Subcommittee have established a policy that distinguishes between the commercial and noncommercial use of the digital maps produced under the MCAMLIS program. Noncommercial use is defined to include the periodic internal use of selected digital mapping materials--not the entire digital mapping file--by private firms and individuals. For noncommercial purposes, it is the general policy of the MCAMLIS Steering Committee and the Subcommittee to make available duplicate copies of the copyrighted digital MCAMLIS maps only by full U. S. Public Land Survey quarter section subject to reimbursement of the cost of reproduction, handling, and distribution. Local units of government within or outside of Milwaukee County; State and Federal agencies; private firms and individuals requesting digital data for internal, noncommercial use; and nonprofit organizations may request duplicate copies of

the digital topographic and cadastral map files. Such requests should be directed to the MCAMLIS Project Manager.[2]

Current cost guidelines for obtaining such duplicate digital mapping files, intended to cover the costs of reproduction, handling, and distribution, are attached as Exhibit B. These guidelines reflect average costs associated with the reproduction, handling, and distribution of digital files as those files are presently stored. All monies received by the MCAMLIS Project Manager under this section will be retained by the SEWRPC as reimbursement for the actual expenses incurred.

Any party requesting duplicate digital files containing MCAMLIS copyrighted mapped data will be required to execute a license agreement in addition to paying for the costs of duplication set forth on Exhibit B. A copy of the license agreement is attached as Exhibit C. The license agreement provides the conditions under which the categories of noncommercial users described above may use the digital map data and prohibits the user from providing access to the data in digital form by a third party.

The MCAMLIS Project Manager is to forward to the MCAMLIS Steering Committee Chairman for action in a timely manner all requests for a license to obtain and use the digital MCAMLIS mapping files. The Chairman will review the request for consistencies with the policies set forth herein. The Chairman will not unreasonably refuse to provide access to the digital materials where the intended use is for a governmental, educational, non-profit, or internal private purpose. The Chairman will make findings and act to approve or disapprove the request. The MCAMLIS Project Manager will then carry out the Chairman's direction with respect to each request. The Chairman shall report all requests for licenses and his determinations with respect thereto to the Steering Committee.

For commercial purposes, that is, where private firms or individuals seek to acquire all or substantially all of the digital files for internal or external use, it is the general policy of the MCAMLIS Steering Committee and Subcommittee to make available duplicate copies of the digital copyrighted MCAMLIS mapping files only in their entirety. The Steering Committee and the Subcommittee will consider requests for duplicate digital copyrighted files for commercial purposes on a case-by-case basis. Requests should be directed to the MCAMLIS Project Manager at the address noted above. The Project Manager will report all such requests to the Subcommittee for their consideration and determination. The Subcommittee will make findings and act to approve or disapprove the request. If the Subcommittee approves the request, the MCAMLIS Steering Committee will then also consider the matter and approve or disapprove the request. If either the Subcommittee or Steering Committee disapprove the request, it shall be denied. All actions to approve a request shall include the terms of a license

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[2]Any requests for MCAMLIS derived digital map files for student use must be made by appropriate school officials on behalf of the students. The school officials must first enter into a license agreement with the Steering Committee. These school officials include deans, department chairmen, or equivalent administrative officers. The requester may then receive up to four U. S. Public Land Survey quarter-section map files free of charge. Requests for more than four quarter sections shall be handled in the same manner as provided above.

agreement. The MCAMLIS Project Manager will then carry out the Subcommittee and Steering Committee's direction with respect to each request.

As a matter of general policy, it is the intent of the MCAMLIS Steering Committee and the Subcommittee to usually require any commercial entity requesting a duplicate copyrighted digital file of the MCAMLIS mapping data base to acquire that data base at a cost of $520,000--representing the amount invested by each of the Utilities in the MCAMLIS program. Of that total, an appropriate amount based upon the reproduction cost schedule set forth in Exhibit B will be paid directly to the SEWRPC as reimbursement for expenses incurred. The remainder will be paid directly to the MCAMLIS Steering Committee and will be used by that Committee in furtherance of the objectives of the MCAMLIS program. All commercial entities intending to acquire a duplicate digital file of the copyrighted MCAMLIS mapping data base for commercial purposes as defined above will be required to enter into a license agreement for the use of that data base. That license agreement--which will be generally based upon the standard license agreement set forth in Exhibit C, but which will be adapted on a case-by-case basis as directed by the Subcommittee and Steering Committee--will govern how, if at all, the commercial entity may provide access to the data in digital form by a third party and will provide for appropriate payment or payments.

Special Arrangements with the Cities of Milwaukee and West Allis

The Steering Committee and the Subcommittee anticipate entering into special arrangements with the Cities of Milwaukee and West Allis relative to the development, sharing, and use of the digital mapping data base. It is recognized that both cities have developed digital cadastral mapping files that, in part, meet the MCAMLIS mapping standards. Recognizing the desirability of enhancing those digital data bases to fully meet MCAMLIS mapping standards, the Steering Committee intends to negotiate special agreements with the Cities of Milwaukee and West Allis whereby the digital cadastral mapping files developed by those cities are enhanced under the MCAMLIS program to fully meet the MCAMLIS mapping standards. In the case of West Allis, it is proposed that enhancement efforts will extend to the standard MCAMLIS map format and digital data file structure. It is the intention of the MCAMLIS Steering Committee to seek State grants-in-aid in support of the enhancement effort. As a part of the projects that are to be formulated to carry out the enhancement efforts, it is expected that resources will be secured so as to permit the MCAMLIS program to provide duplicate digital topographic and cadastral mapping files to the Cities of Milwaukee and West Allis at no cost to those cities in recognition of the value to the MCAMLIS program of the digital cadastral maps prepared by the cities.

MCAMLIS DATA AVAILABILITY

The following represents the availability of MCAMLIS hard copy and digital data as of January 1, 1997:

- Records of control survey stations have been completed and are available for all U. S. Public Land Survey section and quarter section corners in the County.

- Control survey summary diagrams prepared for six-square-mile areas are available for the entire County.

- Hard copies of large-scale topographic base maps are available from MCAMLIS for all of the 996 quarter sections in Milwaukee County. Digital files of such topographic maps are also available for the 996 quarter sections in the County. This availability is summarized on the map attached as Exhibit D.

- Hard copies and digital files of cadastral maps are available from MCAMLIS for 367 of the 641 quarter sections in Milwaukee County scheduled to be completed under the MCAMLIS program. The remaining 355 quarter sections lie wholly within the City of Milwaukee and are to be available from the City. This availability is summarized on the map attached as Exhibit E.

- Street address data are not yet available for any part of the County.

The status of availability of hard copy and digital map products under the MCAMLIS program is continually changing. Interested parties should contact the MCAMLIS Project Manager to inquire about the availability of additional products as time goes on.

* * *

Exhibit A

MCAMLIS HARDCOPY MATERIALS
DISTRIBUTION COST SCHEDULE FOR ALL USERS

Item	Geographic Unit of Coverage	Scale	Sheet Size	Unit Price*
Record of Control Survey Station	One U.S. Public Land Survey Section or Quarter-Section Corner	Not Applicable	8.5" x 11"	$ 1.00
Control Survey Summary Diagram	Six Square-Miles	Not Applicable	17" x 22"	$ 5.00
Topographic Base Map	One U.S. Public Land Survey Quarter-Section	1" = 100' (2' Contour Interval)	36" x 36"	$15.00
Cadastral Map	One U.S. Public Land Survey Quarter-Section	1" = 100'	36" x 36"	$15.00

**Plus shipping costs and sales taxes where applicable.*

Source: MCAMLIS Project Manager; October 17, 1995, revised July 9, 1996.

Exhibit B

MCAMLIS DIGITAL MATERIALS DISTRIBUTION
COST SCHEDULE FOR NON-COMMERCIAL USERS

Digital Format[a]	Topographic Base Map for One U. S. Public Land Survey Quarter-Section		Cadastral Map for One U. S. Public Land Survey Quarter-Section	
	One Quarter-Section	Each Additional Quarter Section[b]	One Quarter-Section	Each Additional Quarter Section[b]
GenaMap	$65	$30	$65	$30
Intergraph DGN[c]	$65	$30	Not Available	Not Available
AutoCAD DXF	$65	$30	$65	$30

[a]The three digital formats included in this table are the most frequently used in Southeastern Wisconsin. Delivery in other formats may not be feasible. Any party desiring to explore delivery in other formats will be expected to pay the costs entailed in determining the feasibility of such delivery.

[b]Ordered simultaneously with the first quarter-section.

[c]Topographic map data are available in native Intergraph design file (DGN) format only for 894 of the 996 U. S. Public Land Survey quarter-sections in the MCAMLIS project area

NOTE: Digital map files can be delivered in one of the following media formats:

1. Either 4-millimeter digital audio tape (DAT) or 8-millimeter magnetic tape, files placed on tape in sequential format with Unix tape archive command;

2. Compact Disk-Read Only Memory (CD-ROM) disk, written to ISO 9660 Level II specifications, files placed on disk in sequential format; or

3. Disk Operating System (DOS) formatted 3.5" diskette, files placed on diskette in sequential format, files compressed if necessary.

Source: MCAMLIS Project Manager; January 28, 1997.

Exhibit C

MILWAUKEE COUNTY AUTOMATED MAPPING
AND LAND INFORMATION SYSTEM

LICENSE AGREEMENT PERTAINING TO THE NON-COMMERCIAL USE OF COPYRIGHTED DIGITAL BASE MAPPING MATERIALS

WHEREAS, Ameritech, the Wisconsin Electric Power Company, and the Wisconsin Gas Company (hereinafter referred to as the "Utilities"), are the joint copyright owners of certain digital base mapping materials developed under the Milwaukee County Automated Mapping and Land Information System (hereinafter referred to as "MCAMLIS"); and

WHEREAS, the MCAMLIS program is presently being administered by the Southeastern Wisconsin Regional Planning Commission (hereinafter referred to as "SEWRPC"), through an employee designated as the MCAMLIS Project Manager; and

WHEREAS, _____, a unit or agency of government, a not-for-profit organization, an educational institution, or a private firm or individual seeking MCAMLIS digital data for internal, non-commercial use, (hereinafter referred to as the "Requestor"), has filed a request with the MCAMLIS Project Manager to obtain duplicate files of the digital MCAMLIS copyrighted base mapping materials (hereinafter referred to as the "digital base maps"); and

WHEREAS, the Utilities are willing to permit the Requestor to obtain the digital base maps subject to the following conditions and understandings:

1. Subject to the limitations set forth below, the Utilities agree not to object to the Requestor using, reproducing, modifying, and/or displaying the digital base maps; preparing or distributing in nondigital form reports incorporating the base maps derived from the digital files; and distributing the base maps and reports in nondigital form to all parties concerned.

2. The Utilities agree not to object to the Requestor making duplicate copies of the digital base map files for its own internal use. Such files, however, are intended only for the use of the employees and agents of the Requestor; and the Requestor and its employees and agents are expressly prohibited from providing copies of the digital base map files to any other party.

3. The Requestor agrees to use the digital base maps only for noncommercial purposes; that is, for governmental and educational purposes and for private purposes when a private firm or individual periodically uses selected digital materials--not the entire MCAMLIS digital files--for internal use.

4. The Requestor agrees to hold the digital base map files in confidence and prevent any third party from having access to those files or to any materials in digital form derived therefrom except as otherwise authorized by the Steering Committee and Sub-committee by special agreement with the Requestor.

5. The distribution or use of the digital base maps in violation of the foregoing provisions shall be deemed a copyright violation and shall automatically terminate all rights of the Requestor relative to the digital base maps or any materials derived therefrom.

6. The Requestor agrees to reimburse the SEWRPC in the amount set forth in the attached cost schedule in connection with obtaining a copy or copies of the digital base maps.

7. The Requestor understands that the digital base maps and materials are being provided AS IS, WITHOUT ANY WARRANTY BY THE UTILITIES AND THE MCAMLIS STEERING COMMITTEE OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND WITHOUT ANY WARRANTY OF ACCURACY. The Requestor hereby agrees to indemnify, defend, and hold harmless the Utilities, the MCAMLIS Steering Committee, the SEWRPC, and any other party to the MCAMLIS program and their subcontractors from any claims arising out of the Requestor's use of the digital base maps or any information or materials derived therefrom.

8. The Requestor understands that neither the Utilities nor the SEWRPC has any obligation to supplement or update any of the digital base maps provided. Should, however, the Utilities or the SEWRPC provide any updated digital base maps to the Requestor, such updated maps shall automatically be covered hereunder.

9. In the event that MCAMLIS derived hardcopy maps depicting the MCAMLIS copyright have been modified by Requestor, the Requestor shall describe such modification and depict the modification as clearly distinguishable from the original MCAMLIS base maps. The Requestor agrees not to misrepresent the MCAMLIS base maps, nor to state or imply that modifications made by Requestor were authorized by MCAMLIS.

AGREED TO:

Requestor: _____

By: _____ Date: _____

Utilities

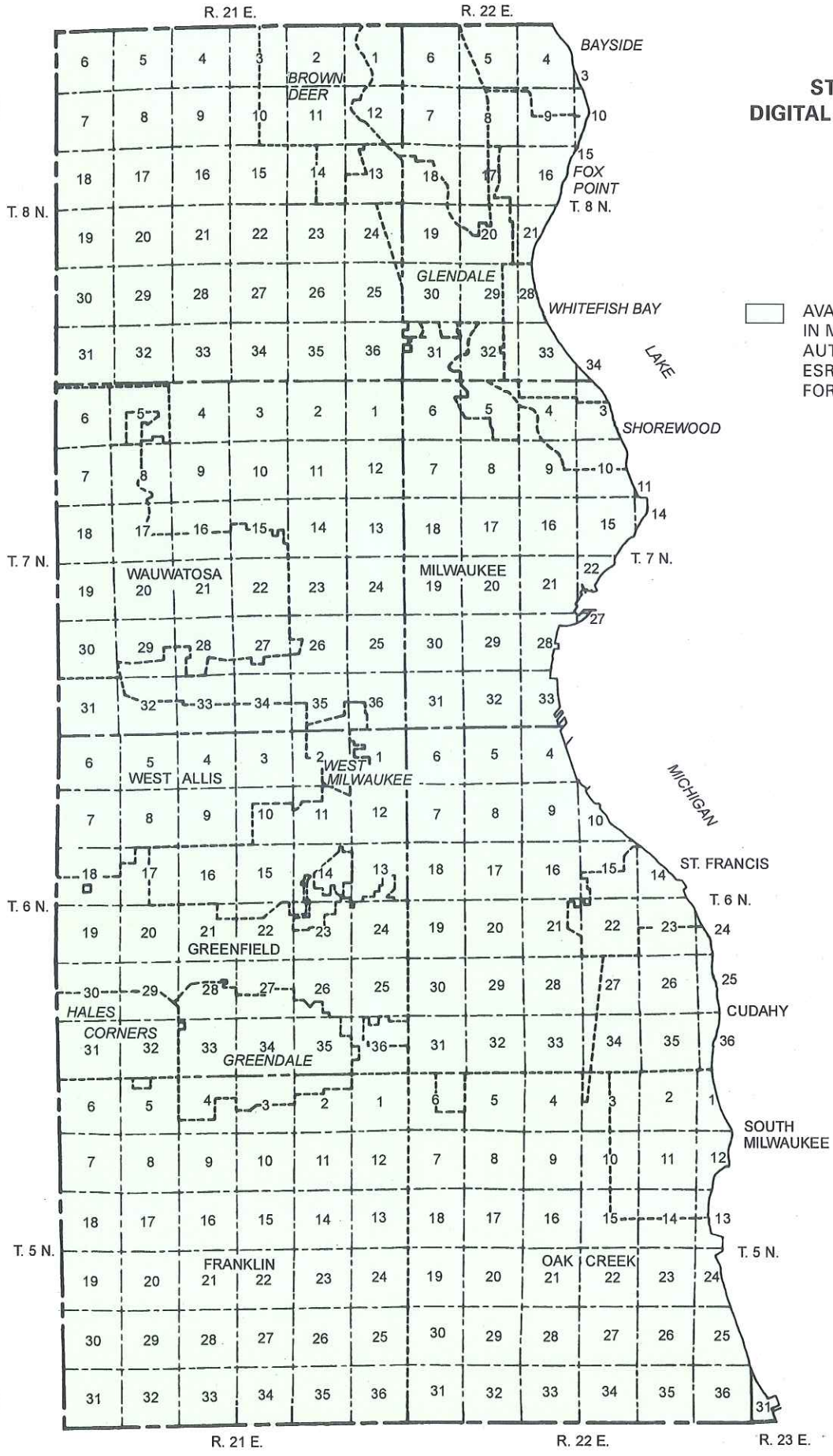
By: _____ Date: _____

* * *

PCE/TDP/rj
LIS\MCAMLIS.gdl
1/30/97

Exhibit D

STATUS OF MCAMLIS DIGITAL TOPOGRAPHIC MAPPING



AVAILABLE FOR DISTRIBUTION IN MICROSTATION DGN, AUTOCAD 2000 DWG AND ESRI ARCINFO COVERAGE FORMATS

DECEMBER 31, 2002

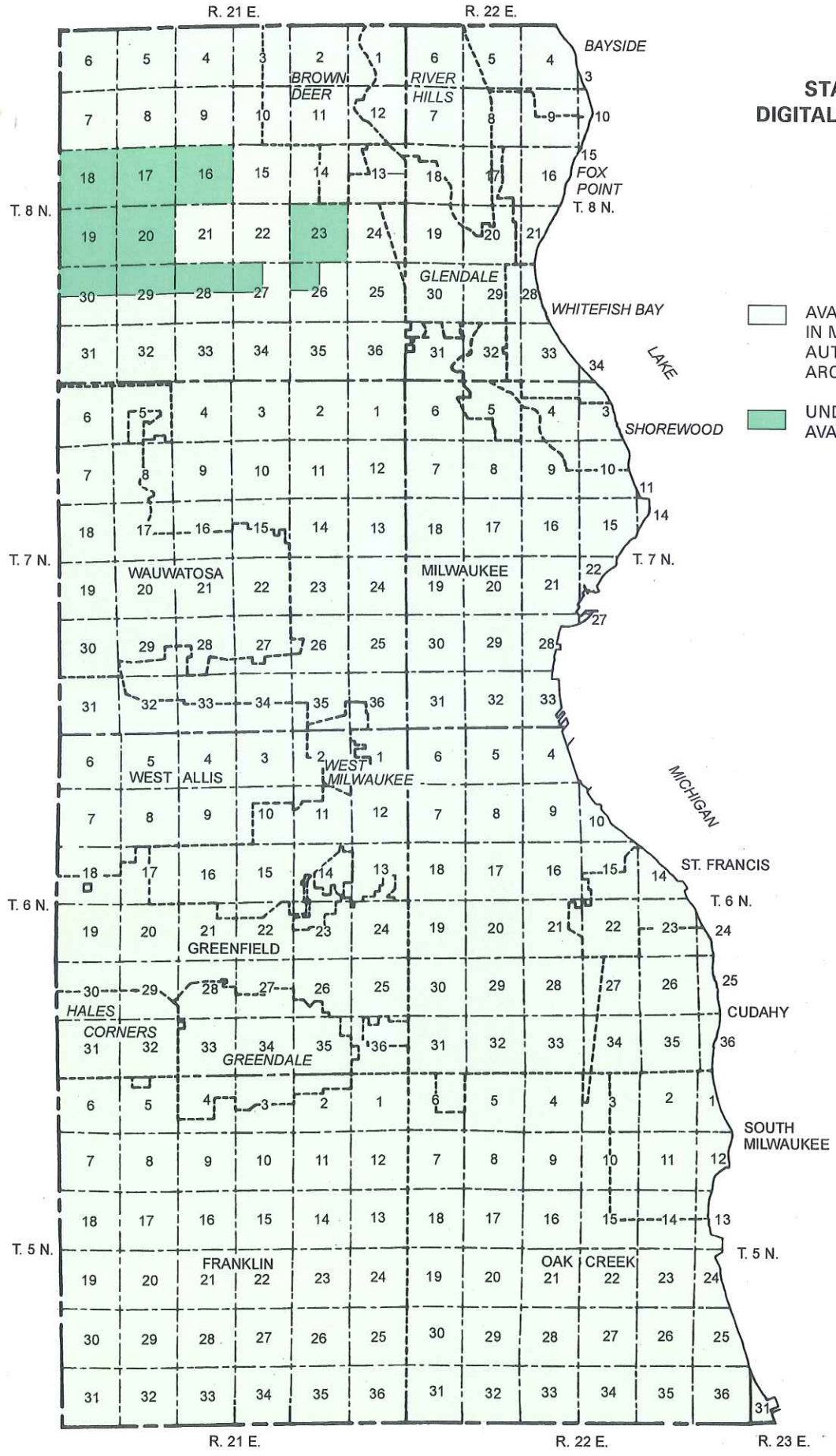
GRAPHIC SCALE

0 3 MILES

Source: MCAMLIS Project Manager.

Exhibit E

STATUS OF MCAMLIS DIGITAL CADASTRAL MAPPING



AVAILABLE FOR DISTRIBUTION IN MICROSTATION DGN, AUTOCAD 2000 DWG AND ESRI ARCINFO COVERAGE FORMATS

UNDER PREPARATION — NOT AVAILABLE FOR DISTRIBUTION

JUNE 30, 2004

GRAPHIC SCALE

0 3 MILES

Source: MCAMLIS Project Manager.

MINUTES OF THE 61st MEETING

Milwaukee County Automated Mapping and Land Information System Steering Committee

DATE: November 2, 2004

TIME: 9:00 A.M.

PLACE: Milwaukee County Courthouse
Room 203P
901 North Ninth Street
Milwaukee, Wisconsin

Members Present

Kurt W. Bauer, Chairman	Milwaukee County Surveyor
John M. Bennett	City Engineer, City of Franklin, representing the Intergovernmental Coordination Council of Milwaukee County
Donald Coe	Supervisor, Facility Location, We Energies
Mary B. Dowdle	Design Area Manager – Milwaukee Metro North, SBC
Gregory G. High	Director, Architectural and Engineering Services, Milwaukee County Department of Parks and Public Infrastructure, representing Susan Black, Parks Director, Milwaukee County Department of Parks and Public Infrastructure
John LaFave	Register of Deeds, Milwaukee County
Donald R. Nehmer	Capital Program Business Manager, Milwaukee Metropolitan Sewerage District
Clare O'Brien	Fiscal and Management Analyst, Milwaukee County Department of Administrative Services
Nancy A. Olson	Enterprise Information Manager, Information and Technology Management Division, City of Milwaukee
John C. Place	Manager, Maps and Records, WE Energies

Guests and Staff Present

Kathleen A. Bach	GIS Technician, Register of Deeds Office, Milwaukee County
Gary E. Drent	Fiscal & Budget Manager, Architectural and Engineering Services, Milwaukee County Department of Parks and Public Infrastructure
Marcia G. Lindholm	Central Drafting and Records Manager, Infrastructure Services Division, City of Milwaukee
Reinhard B. Meihsner	Consultant, Spatial Data Solutions, Inc.
James C. Owen	Damage Prevention Manager, SBC
Thomas D. Patterson	MCAMLIS Project Manager
Scott Stocking	Systems Analyst, GeoAnalytics
Peter Thum	President, GeoAnalytics
Thomas J. Tym	Head, Technology Services Department, Ruekert & Mielke, Inc.
Loretta Watson	SEWRPC Executive Secretary
Kevin R. White	GIS Supervisor, Architectural and Engineering Services, Milwaukee County Department of Parks and Public Infrastructure

ROLL CALL

The sixty-first meeting of the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee was called to order by Chairman Bauer at 9:00 a.m. Roll call was taken by circulating an attendance signature sheet, and a quorum was declared present.

Chairman Bauer then noted that there were two new members of the Committee present, Mr. Donald R. Nehmer, Capital Program Business Manager, Milwaukee Metropolitan Sewerage District, replacing Mr. David S. Misun; and Mr. Donald Coe, Supervisor, Facility Location, We Energies, replacing Mr. William C. Shaw.

CONSIDERATION OF THE MINUTES OF THE 60TH STEERING COMMITTEE MEETING HELD ON SEPTEMBER 14, 2004

Chairman Bauer reported that the minutes of the sixtieth meeting of the Steering Committee held on September 14, 2004, had not been completed in time for consideration at this meeting, but should be ready for consideration at the next Committee meeting.

REPORTS

Report By Project Staff On The Status of the MCAMLIS Floodland Mapping Projects

Chairman Bauer noted that copies of two staff memoranda setting forth the current status of the two MCAMLIS floodland mapping projects currently underway had been provided to all members of the Steering Committee for review prior to the meeting. He called attention to the bar charts and maps graphically illustrating the status of the work attached to each memorandum.

There being no questions or comments on the reports, it was the consensus of the Committee that the reports be placed on file via the minutes of the meeting (copy of each staff memorandum concerned attached to these minutes).

Report By Milwaukee County Register of Deeds Staff On MCAMLIS Street Address File and Cadastral Map Maintenance Operations

Chairman Bauer noted that all Steering Committee members had received copies of maps showing the status of the Milwaukee County cadastral map and street address file maintenance as of October 26, 2004, for review prior to the meeting. He then asked Ms. Kathleen A. Bach, GIS Technician, Milwaukee County Register of Deeds Office to present the status reports to the Committee. Ms. Bach did so with the aid of the two status maps.

There being no questions or comments on the report, it was the consensus of the Committee that the two status maps be placed on file via the minutes of the meeting (copies of the two status maps attached to these minutes).

Report By City of Milwaukee Staff On The Status of Milwaukee Cadastral Map Transformation Project

Chairman Bauer noted that all members of the Steering Committee had received a copy of the report on the City of Milwaukee Cadastral Map Transformation Project for review prior to the meeting. He asked Ms. Olson to review the report with the Committee, which Ms. Olson did with reference to the status map attached to the report.

In answer to a question by Chairman Bauer, Ms. Olson indicated that there were only fifteen quarter-section maps remaining on which transformation work had not begun as of the date of the progress report, October 26, 2004, and that she expected that the entire transformation project would be completed by the end of this calendar year.

There being no further questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of report attached to these minutes).

License Agreements Executed On Behalf Of The Utilities Subcommittee

Chairman Bauer noted that all members of the Steering Committee had received a copy of a table listing all of the license agreements governing the provisions of MCAMLIS base maps and related data to users as executed from January 1, 2003, through October 26, 2004.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of the license agreement table concerned attached to these minutes).

Status of MCAMLIS Cash Flow

Chairman Bauer noted that a copy of a table summarizing the status of the MCAMLIS program cash flow as of September 30, 2004, had been provided to all Steering Committee members for review prior to the meeting. He then asked Ms. O'Brien to present the report.

Ms. O'Brien noted that, as of the date of the report, available funds were shown as totaling approximately $4.2 million. She noted that there were outstanding encumbrances of approximately $500,000 not reflected in the report, so that the actual net available funding totaled approximately $3.7 million.

In answer to a question by Chairman Bauer, Ms. O'Brien indicated that she did not know whether or not interest accrued on the accumulated funds was being credited to the MCAMLIS account and was reflected in the cash flow report, but that she would investigate this matter and report her findings to the Committee at its next meeting.

There being no further questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of the table setting forth the MCAMLIS cash flow status as of September 30, 2004, attached to these minutes).

Report By Project Staff On MCAMLIS Program 2005 Budget Request

Chairman Bauer noted that all members of the Steering Committee had received a copy of the calendar year 2005 MCAMLIS budget as submitted to the County Board by the County Executive; and called particular attention to the amounts set forth in the summary table and to the highlights set forth on the second page of the document.

Chairman Bauer indicated that it was his understanding that Mr. Lee Holloway, the Chairman of the County Board, had submitted an amendment to the MCAMLIS budget as proposed by the County Executive and set forth in budget document provided to the Committee; the essence of the amendment requiring that the MCAMLIS project was to be managed in strict accordance with Milwaukee County procurement and contracting policies and ordinances; and directing the County Corporation Counsel to review the cooperative agreement creating the MCAMLIS program and Steering Committee in 1990 to assure that the authorization granted to the Steering Committee was consistent with County interests,

policies, and ordinances and requiring the Corporation Counsel to recommend any needed changes to the agreement with the County Board.

There being no further questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (a copy of the budget documents concerned attached to these minutes).

OLD BUSINESS

Consideration of Proposed Program To Update MCAMLIS Digital Topographic Maps

Chairman Bauer noted that a staff memorandum setting forth a proposed four-year program to update the existing MCAMLIS digital topographic mapping of Milwaukee County had been provided to and reviewed by the Steering Committee at its meeting held on July 20, 2004. He noted that at that meeting the Committee had directed the creation of a Subcommittee to provide counsel to the Committee on the need for the program. As appointed by the Chairman, the Subcommittee consisted of Mr. Timothy R. Bate, P.E., Engineering Planning Manager, Milwaukee Metropolitan Sewerage District, and President of the Wisconsin Section, American Society of Civil Engineers, as Chairman of the Subcommittee; Mr. Rick Norris, P.E., President, Norris and Associates, Inc.; Mr. Gregory G. High, Director, Architectural and Engineering Services, Milwaukee County Department of Parks and Public Infrastructure; Mr. William C. Shaw, Manager, Geographic Information Systems, We Energies; and Mr. Timothy J. Thur, P.E., Chief Sewer Design Manager, Environmental Engineering Division, City of Milwaukee. That Subcommittee presented its report to the Steering Committee at its meeting held on September 14, 2004. At that meeting, the Steering Committee requested that the Chairman to augment the membership of the Subcommittee, and directed that the Subcommittee be reconvened to address several issues left unresolved by the original Subcommittee report, and that the augmented Subcommittee report be provided to the Steering Committee at today's meeting. The Chairman noted that the original Subcommittee membership had been augmented as requested by the addition of the following three individuals: Ms. Alyssa A. Bails, AICP, GIS Division Manager, R.A. Smith & Associates, Inc.; Mr. Thomas J. Tym, Head, Technology Services Department, Ruekert & Mielke, Inc.; and Mr. Richard S. Vraga, Liaison for Wisconsin and Illinois, U.S. Geological Survey. He noted that both Ms. Bails and Mr. Tym were members of engineering firms that provided a number of communities within Milwaukee County with land information system as well as municipal engineering services. The Chairman then asked Mr. Patterson to present the augmented Subcommittee's report and the attendant staff recommendation for consideration by the Committee.

Mr. Patterson then presented and reviewed three documents with the Committee: 1) minutes of the third meeting of the Milwaukee County Automated Mapping and Land Information System Subcommittee On Topographic Mapping (as augmented) held on October 19, 2004; 2) Milwaukee County Automated Mapping and Land Information System Subcommittee on Topographic Mapping Report to the Steering Committee dated September 3, 2004, and revised October 28, 2004; and 3) a staff memorandum entitled *Proposed MCAMLIS Digital Topography Mapping Program,* dated July 7, 2004, and revised October 28, 2004. Mr. Patterson noted that copies of all three documents had been provided to Committee members for review prior to the meeting (copies of the three documents concerned attached to these minutes).

The following questions and comments were raised during the Committee consideration of the mapping proposal.

In answer to a question by Chairman Bauer, Mr. Patterson indicated that indeed it was not proposed to eliminate the U.S. Public Land Survey System and related geodetic survey data from inclusion on the finished maps; the survey data, however, would not be provided by the photogrammetric engineer but by the County Surveyor.

In answer to a question by Mr. Bennett, Mr. Patterson indicated that -- if provided -- the orthophotographs would be controlled to the same survey data as the proposed line maps. Chairman Bauer noted that -- contrary to popular perception -- orthophotographs were not true maps and contained distortion due to relief at elevations above and below the average elevation for an area used to control the orthophotography; therefore, he cautioned Mr. Bennett not to expect precise conformance between orthophotographs and line maps. He also noted that the Regional Planning Commission obtains orthophotography of the entire region at regular five year intervals.

Ms. Olson requested that mapping of the Marquette Interchange area and environs be postponed until completion of the reconstruction of the Interchange, probably in 2008. In response, Chairman Bauer indicated that the requested change in scheduling could be readily accommodated by an exchange of scheduled areas.

In answer to a question by Mr. High, Mr. Patterson referred to Map 2 attached to the staff memorandum indicating that the area shaded light green was the area for which mapping quality, digital aerial photography had been obtained in the Spring of 2004. In answer to a further question by Mr. Place, Mr. Patterson indicated that the area had been photographed by the firm of Aero-Metric, Inc., on speculation for a project that did not come to pass.

Ms. O'Brien noted that any contract for implementation of the proposed mapping program would need to be reviewed and approved by the County Corporation Counsel, the County Risk Manager, and the County Minority Business Enterprise Manager; and, while sole-source contracts were permitted, justification for such contracts would have to be provided.

Messrs. High and Nehmer suggested that the proposed mapping program be carried out in one year rather than being spread over four years. A lengthy discussion then ensued during which Mr. Bennett observed that on a continuing basis a four year cycle would -- in the future -- be more practical with respect to funding availability Chairman Bauer observed that conducting the program over one year would not meet the City's request that mapping of the Marquette Interchange area be postponed until reconstruction of the Interchange is completed. Mr. High observed that expediting the project would make the finished maps available quickly for use and should minimize the cost of the mapping. Mr. Patterson observed that it may be possible to lock in current 2004 costs over a four year contract, thereby avoiding potential impacts of general price inflation. Mr. Bennett indicated that it would be important to encumber the funds for the entire program whether the program is carried out over a one or a four year period in order to ensure program completion. This, he said, would require funding entirely from the surplus presently available in the MCAMLIS account.

In answer to a question by Chairman Bauer, Ms. O'Brien and Mr. Patterson indicated that if the total cost of the proposed program were to be paid from surplus funds, approximately one million dollars of such funds would remain in the MCAMLIS account; and, in addition, revenues would continue to be received into the account at an anticipated rate of approximately $750,000 or more per year.

The Committee then considered the scope and content of potential tentative motions. In the discussion that followed, Mr. Nehmer reiterated that he would prefer to see the project completed in one year; this would make the maps immediately available for use and would avoid the need for a continuous updating program under which the fourth year of the contemplative program would have to be followed immediately by the first year of a successive program. Mr. High agreed with Mr. Nehmer's comment.

In answer to a question by Ms. O'Brien, Mr. Patterson indicated that the Steering Committee had formally adopted a set of guidelines that set forth the basis on which the MCAMLIS topographic and cadastral maps and related survey and line information data are to be provided to the municipalities within

the County. In effect, he said, the maps and data are provided free of cost to the participating utilities including the Sewerage District, as well as to all Milwaukee County departments. The City of Milwaukee and the eighteen suburban units of government within the County are, upon request, provided with the maps and data at the nominal cost of reproduction.

In answer to a question by Mr. Place, Mr. Patterson indicated that the use of the available 2004 photography would have two potential benefits: 1) initiation of map preparation immediately upon execution of a contract; and, 2) the cost entailed would be at 2004 rates which should be significantly lower than 2005 rates. Mr. High suggested that whether or not to use the available photography should be considered and determined in the required contract negotiations with the photogrammetric engineer.

With respect to Mr. Nehmer's comments, Mr. Bennett suggested that the issue could be addressed by entering into a contract which would require the photogrammetric engineer to complete the re-mapping of the entire County in four years, but that would also allow the photogrammetric engineer to complete as much of the mapping on an accelerated schedule as would be cost effective.

After some further discussion, on a motion by Mr. Bennett, seconded by Ms. Olson, and carried unanimously, the Staff was directed to proceed with the preparation of new topographic maps for all of the County as recommended in the Staff memorandum titled, *Proposed MCAMLIS Digital Topographic Mapping Program, dated July 7, 2004, and revised October 28, 2004*, with the following changes: 1) the work products specified should include delivery of matching colored orthophotography at the same scale as the topographic line maps; 2) the contract should specify the completion of the mapping of the entire County in a period of no more than four years; but should permit an accelerated completion schedule if such a schedule is shown to be cost effective; 3) new mapping of the Marquette Interchange and environs should be postponed until completion of the re-construction of the Interchange; and 4) funding completion of the entire project should be committed utilizing surplus funds presently accumulated in the MCAMLIS account.

Chairman Bauer indicated that the next step, in response to the Committee action, should be for the Staff to draft a contract proposed to be entered into between the Steering Committee and the Regional Planning Commission governing the conduct of the proposed mapping program. The Commission would in turn contract with a qualified photogrammetric engineer to perform the required mapping services and, he said, the Commission would be responsible for the administration of the contracts and for the review of the completed mapping for quality control.

Review of Technical Specifications For The Milwaukee County GIS Database Design Project

Chairman Bauer noted that Mr. High had asked that the Committee consider adoption of the technical specifications to be used in the design of the County geographic information system database and asked Mr. High to brief the Steering Committee on his request.

Mr. High noted that the Committee had, at its meeting held on September 14, 2004, received copies of and briefings on the two reports prepared by the firm of GeoAnalytics under contract to the County, containing recommendations for, among other matters, the design of a geographic land information system (GIS) database. He then introduced Mr. Peter Thum, President of GeoAnalytics, and asked Mr. Thum to brief the Steering Committee on his firm's recommendations with respect to County database development. Mr. Thum did so with the aid of slides (copy of slides used in the presentation attached to these minutes).

Upon completion of Mr. Thum's report, Chairman Bauer noted that Mr. High was asking the Committee to approve GeoAnalytics' recommendations for the development of a County GIS database. He noted that implementation of the proposed recommendations would have a cost of approximately $700,000, and

asked whether the Committee was ready to act on Mr. High's request. A lengthy discussion then ensued in which Ms. O'Brien indicated that she was not ready to act favorably on this request until she had completed an analysis of the availability of funding for the request. Mr. Nehmer indicated that he was not ready to act favorably on the request without a review of the recommendations concerned by cognizant Sewerage District staff.

After some further discussion, it was the consensus of the Committee that the four utilities represented on the Committee refer the request and, specifically, the proposed County database design, to cognizant staff for review and report back to the Steering Committee at its next meeting.

Mr. Bennett, Ms. Dowdle, and Ms. Olson all noted that it was now 11:45 a.m. and that prior commitments required them to leave. Chairman Bauer, noting the lateness of hour, the need for three members of the Committee to leave, and the importance of the remaining items of business on the agenda, suggested postponing consideration of the remaining items, namely items IV.C and VI.A through E, and VII. of the agenda, to a future meeting.

DATE, TIME, AND PLACE OF NEXT MEETING

Given the importance of the agenda items concerned, he asked that the Committee give consideration to scheduling another meeting within the next two weeks. After brief discussion, it was agreed that the next meeting of the Committee would be scheduled to be held on Tuesday, November 16, 2004, beginning at 9:00 a.m. in the Milwaukee County Courthouse, Room 203P.

ADJOURNMENT

There being no further business to come before the Steering Committee and given the lateness of hour, on a motion by Mr. Bennett, seconded by Ms. Olson and carried unanimously, the meeting was adjourned at 11:55 a.m.

Respectfully submitted,

Thomas D. Patterson
MCAMLIS Project Manager

KWB/TDP/lw
#101241 v1 - MCAMLIS 61st Min

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MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: SEWRPC Staff

DATE: October 15, 2004

SUBJECT: **STATUS REPORT NO. 10 ON PHASE I OF THE MILWAUKEE COUNTY FLOODLAND MAPPING PROJECT**

This memorandum sets forth the progress made on Phase I of the Milwaukee County Floodland Mapping project from July 1, 2004, through September 30, 2004. That project phase includes all streams that are to be studied in the County, with the exception of those in the Root River watershed. This status report addresses project progress in the following three major areas and also identifies major issues that have arisen:

- Data Acquisition
- Hydrologic and Hydraulic Modeling
- Floodland Map Preparation

Overall, the Phase I portion of the project is about 80 percent completed. Progress is summarized in the attached Exhibit 1 and is graphically summarized on the map attached hereto as Exhibit 2.

DATA ACQUISITION

During the period of July 1, 2004, through September 30, 2004, the following data acquisition activities were carried out:

- As indicated by Exhibit 1, data acquisition activities are substantially completed. When additional data needs are addressed as work proceeds, the acquisition of the data is coordinated with the Milwaukee Metropolitan Sewerage District (MMSD), the Wisconsin Department of Natural Resources (WDNR), the Wisconsin Department of Transportation (WisDOT), and the City of Milwaukee.
- The Commission staff reviewed City of Milwaukee plan files for numerous Milwaukee River Riverwalk projects, identified pertinent plan sheets, obtained copies of those sheets from the City, and refined the hydraulic model of the River to reflect the Riverwalk.
- The Commission staff collected field measurements at bridges and drop structures along the main stem of the Kinnickinnic River, Lyons Park Creek, and Wilson Park Creek.

HYDROLOGIC AND HYDRAULIC MODELING

During the reporting period, progress on hydrologic and hydraulic modeling for Phase I of the project included the following:

Kinnickinnic River Watershed

- Substantially completed a detailed review of the hydraulic models for the main stem of the Kinnickinnic River, Lyons Park, and Edgerton Channel/Wilson Park Creek and began work on the models for Villa Mann Creek and the Villa Mann Creek Tributary.

Milwaukee River Watershed

- Completed hydrologic and hydraulic modeling work for Southbranch Creek.

- Work continued on review and revision of the USEPA SWMM hydrologic model for Beaver Creek.

FLOODLAND MAP PREPARATION

- Completed mapping of the 10-, 50-, 100-, and 500-year floodplain boundaries and the 100-year floodway boundaries along Southbranch Creek in the City of Milwaukee and the Village of Brown Deer. The maps reflect the features of the flood control project that was constructed by MMSD. Maps were provided for review by the City, the Village, and MMSD.

MAJOR PROJECT ISSUES AND CONSIDERATIONS

Hydrologic Modeling Procedure Approvals—It was reported in the sixth and seventh status reports, dated January 10, 2003, and May 29, 2003, that, as part of their review of the hydrologic study for the Pike River watershed in Kenosha and Racine Counties, Post, Buckley, Schuh & Jernigan (PBS&J), the Federal Emergency Management Agency's (FEMA) map coordination contractor, was developing a set of standards for acceptable continuous simulation modeling studies. The final FEMA report entitled "Pike River Watershed Hydrology and Continuous Simulation Modeling Review and Summary," was issued on August 14, 2003. As we had speculated in past status reports, the PBS&J review and the resulting FEMA report support the continuous simulation modeling procedures as practiced by the Commission and the MMSD. The Commission wrote to FEMA and WDNR indicating Commission acceptance of the findings of the report; the Commission staff intention to proceed with continuous simulation modeling under the MCAMLIS floodplain mapping project; and asking that WDNR provide review comments on the hydrology memoranda that were submitted in 2002 and 2003 as described below.

SEWRPC Staff Memoranda summarizing the proposed hydrologic modeling approach for the Milwaukee River main stem, the entire Underwood Creek subwatershed, and the Menomonee River watershed were submitted to WDNR and FEMA on July 24, 2002, September 16, 2002, and April 24, 2003, respectively. Favorable reviews of the modeling approaches for the Milwaukee River main stem and the Underwood Creek subwatershed have been obtained from FEMA. Issues raised by FEMA regarding the Menomonee River watershed will be addressed under the process described below. To date, there still has been no response from the WDNR on any of the three memoranda; however, the Commission staff is continuing with the hydraulic modeling and floodplain mapping for the streams.

In December 2003, FEMA initiated a study to develop additional criteria for continuous simulation hydrologic analyses and to address the issues raised in the initial FEMA review of the proposed Menomonee River hydrologic analysis. The additional study is an extension of the August 14, 2003, FEMA study mentioned above. The Commission staff provided detailed comments on the draft scope of work for the additional study proposed in December 2003 and received assurances that FEMA would

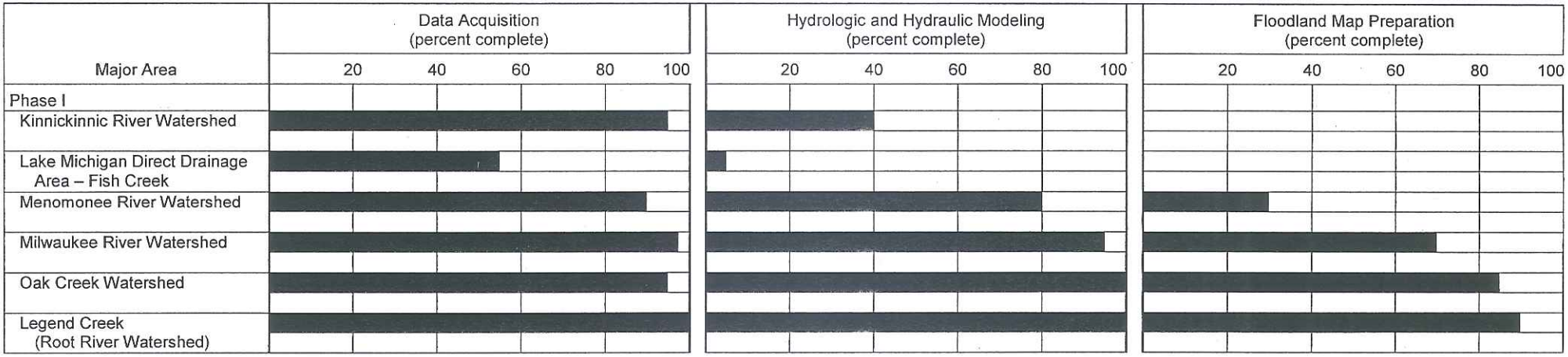
consider those comments. A draft of a key appendix from the additional study report was received in April 2004 and Commission staff comments were provided to FEMA. As second draft of that part of the study was received on September 15, 2004 and Commission staff comments were again provided to FEMA. As of the date of this status report, no additional work products had been received from FEMA.

* * *

#100309 V1 - MCAMLIS PH I MILW CTY FLPL STATUS RPT 10
PCE/MGH/pk

Exhibit 1

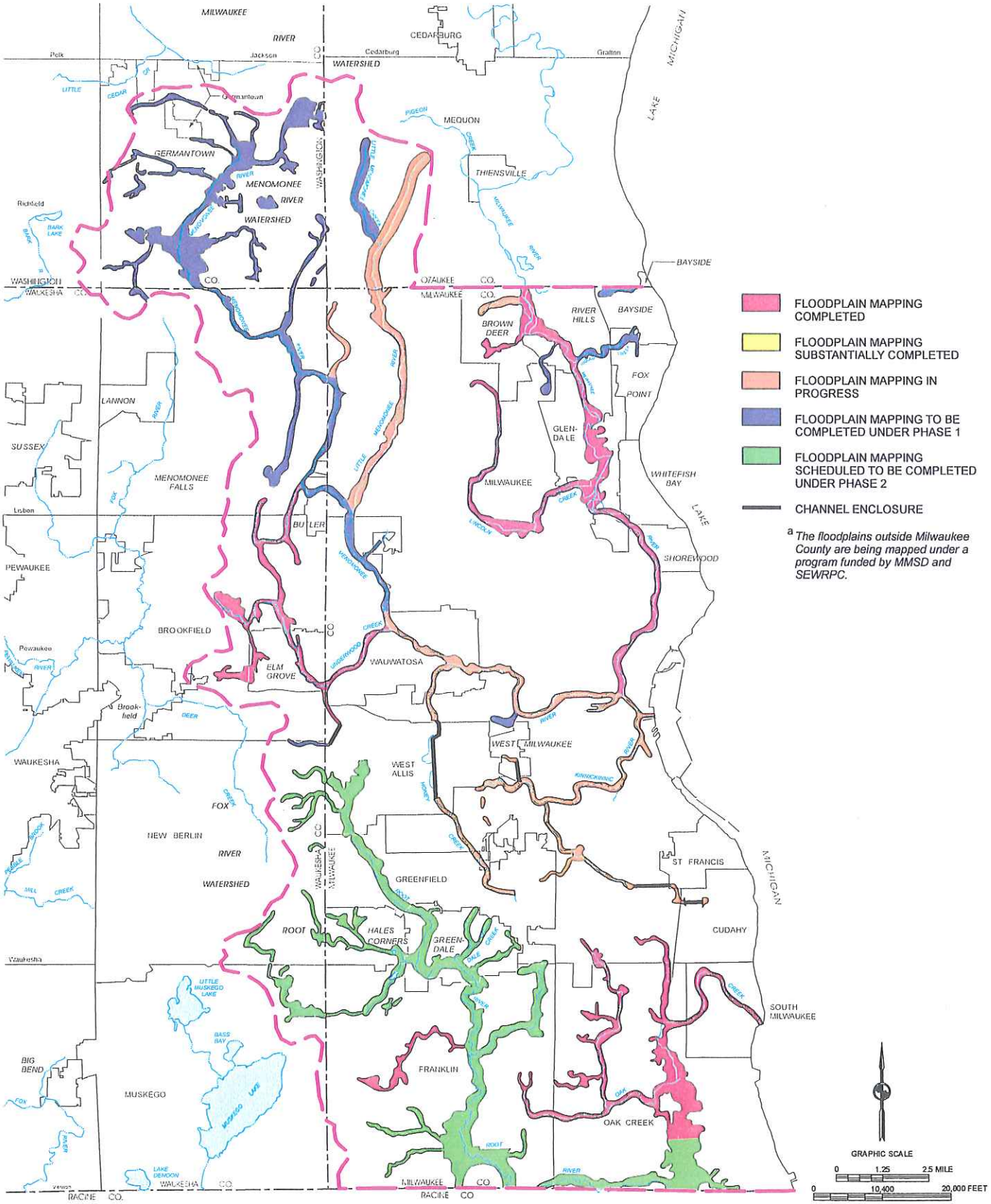
STATUS OF MCAMLIS PHASE I MILWAUKEE COUNTY FLOODLAND MAPPING PROJECT: SEPTEMBER 30, 2004



#100309 V1 - MCAMLIS PH I MILW CTY FLPL STATUS RPT 10
MGH/pk
10/15/04

Exhibit 2

STATUS OF FLOODPLAIN MAPPING IN MILWAUKEE COUNTY AND IN MENOMONEE AND ROOT RIVER WATERSHEDS OUTSIDE MILWAUKEE COUNTY[a] SEPTEMBER 30, 2004



[a] *The floodplains outside Milwaukee County are being mapped under a program funded by MMSD and SEWRPC.*

Source: SEWRPC.

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
W239 N1812 ROCKWOOD DRIVE • PO BOX 1607 • WAUKESHA, WI 53187-1607• TELEPHONE (262) 547-6721
FAX (262) 547-1103

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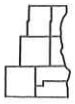
WASHINGTON
WAUKESHA



MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: SEWRPC Staff

DATE: October 15, 2004

SUBJECT: **STATUS REPORT NO. 2 ON PHASE II OF THE MILWAUKEE COUNTY FLOODLAND MAPPING PROJECT**

This memorandum sets forth the progress made on Phase II of the Milwaukee County Floodland Mapping project from July 1, 2004, through September 30, 2004. That project phase includes the streams that are to be studied in the County in the Root River watershed except for Legend Creek, which was studied under Phase I. In general status reports will address project progress in the following three major areas and they will also identify major issues that have arisen:

- Data Acquisition
- Hydrologic and Hydraulic Modeling
- Floodland Map Preparation

This status report only lists data acquisition activities, since the modeling and map preparation stages of the project have not yet begun. Overall, the Phase II portion of the project is about 5 percent completed. Progress is summarized in the attached Exhibits 1 and 2.

DATA ACQUISITION

During the period of July 1, 2004, through September 30, 2004, the following data acquisition activities were carried out:

- Completed coordination with National Survey & Engineering on the collection of hydraulic structure survey data for 29 structures located on the North Branch of the Root River, an Unnamed Tributary to the North Branch of the Root River, Ryan Creek, an Unnamed Tributary to Ryan Creek, the Northwest Branch of Whitnall Park Creek, Tess Corners Creek, and Wildcat Creek. The survey data collection was funded with a Strategic Initiative Grant from the Wisconsin Land Information Board.
- Work continued on coordination with the MMSD.

- All necessary data for mapping Lake Michigan coastal flood hazard areas has been obtained.

FLOODLAND MAP PREPARATION

- Mapping of Lake Michigan coastal flood hazard areas is about 40 percent complete.

MAJOR PROJECT ISSUES AND CONSIDERATIONS

Hydrologic Modeling Procedure Approvals—Because the hydrologic analyses intended to be applied in the Root River watershed are based on continuous simulation methodology, as are most of the analyses made under Phase I, Phase II of the project requires resolution of issues raised by the Wisconsin Department of Natural Resources and the Federal Emergency Management Agency. It was reported in the sixth and seventh status reports for Phase I, dated January 10, 2003, and May 29, 2003, that, as part of their review of the hydrologic study for the Pike River watershed in Kenosha and Racine Counties, Post, Buckley, Schuh & Jernigan (PBS&J), the Federal Emergency Management Agency's (FEMA) map coordination contractor, was developing a set of standards for acceptable continuous simulation modeling studies. The final FEMA report entitled "Pike River Watershed Hydrology and Continuous Simulation Modeling Review and Summary," was issued on August 14, 2003. As we had speculated in past status reports, the PBS&J review and the resulting FEMA report support the continuous simulation modeling procedures as practiced by the Commission and the MMSD. The Commission wrote to FEMA and WDNR indicating Commission acceptance of the findings of the report; the Commission staff intention to proceed with continuous simulation modeling under the MCAMLIS floodplain mapping project; and asking that WDNR provide review comments on the hydrology memoranda that were submitted in 2002 and 2003. To date, there still has been no response from the WDNR on any of the memoranda; however, the Commission staff is continuing with the hydraulic modeling and floodplain mapping for the streams.

In December 2003, FEMA initiated a study to develop additional criteria for continuous simulation hydrologic analyses and to address the issues raised in the initial FEMA review of the proposed Menomonee River hydrologic analysis. The additional study is an extension of the August 14, 2003, FEMA study mentioned above. The Commission staff provided detailed comments on the draft scope of work for the additional study proposed in December 2003 and received assurances that FEMA would consider those comments. A draft of a key appendix from the additional study report was received in April 2004 and Commission staff comments were provided to FEMA. As second draft of that part of the study was received on September 15, 2004 and Commission staff comments were again provided to FEMA. As of the date of this status report, no additional work products had been received from FEMA.

* * *

#100348 V1 - MCAMLIS PH II MILW CTY FLPL STATUS RPT 2
PCE/MGH/pk

Exhibit 1

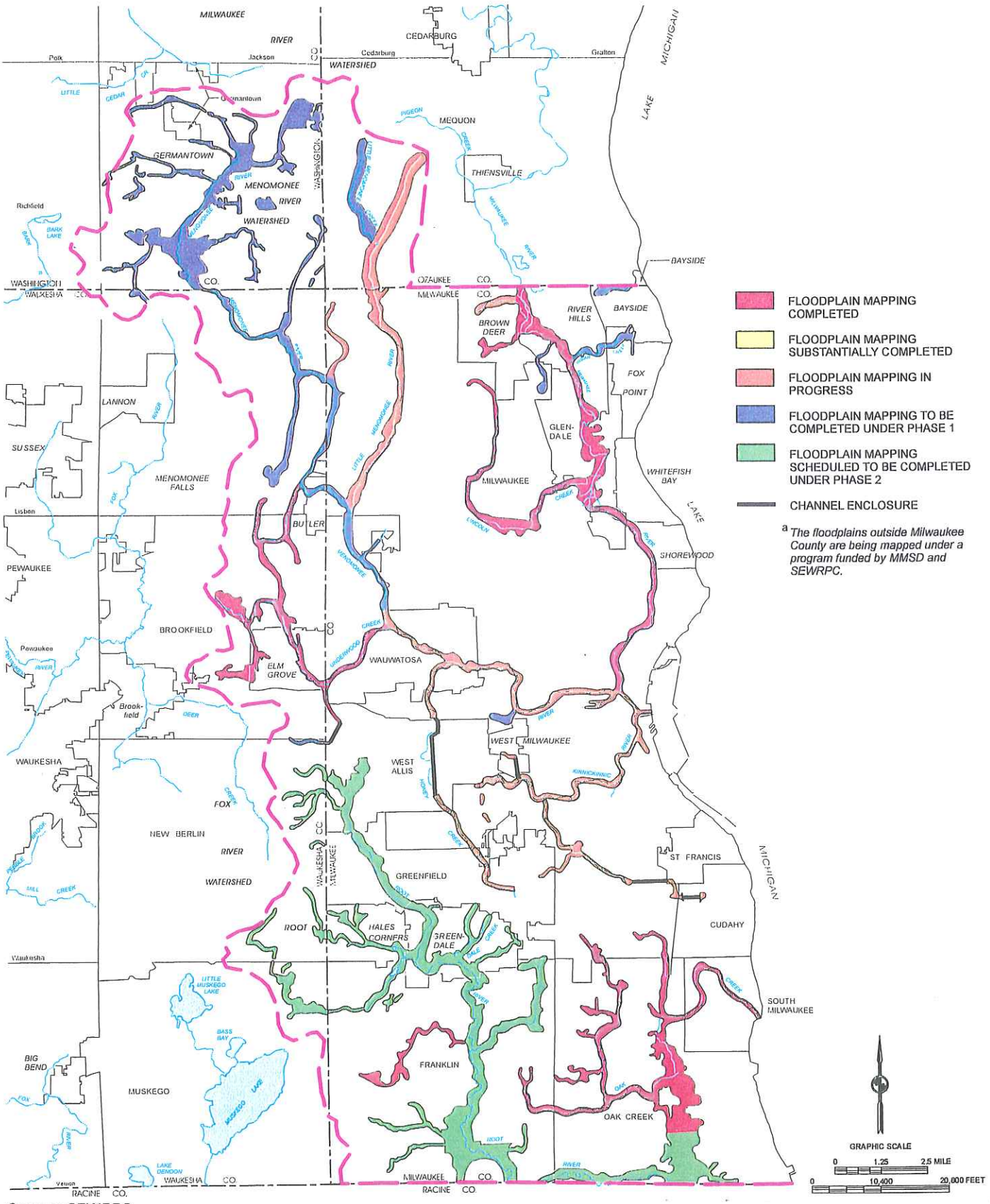
STATUS OF MCAMLIS PHASE II MILWAUKEE COUNTY FLOODLAND MAPPING PROJECT: SEPTEMBER 30, 2004

Major Area	Data Acquisition (percent complete)					Hydrologic and Hydraulic Modeling (percent complete)					Floodland Map Preparation (percent complete)				
	20	40	60	80	100	20	40	60	80	100	20	40	60	80	100
Phase II															
Lake Michigan Coastal Flooding Areas						NA	NA	NA	NA	NA					
Root River Watershed															

#100348 V1 - MCAMLIS PH II MILW CTY FLPL STATUS RPT 2
MGH/pk
10/15/04

Exhibit 2

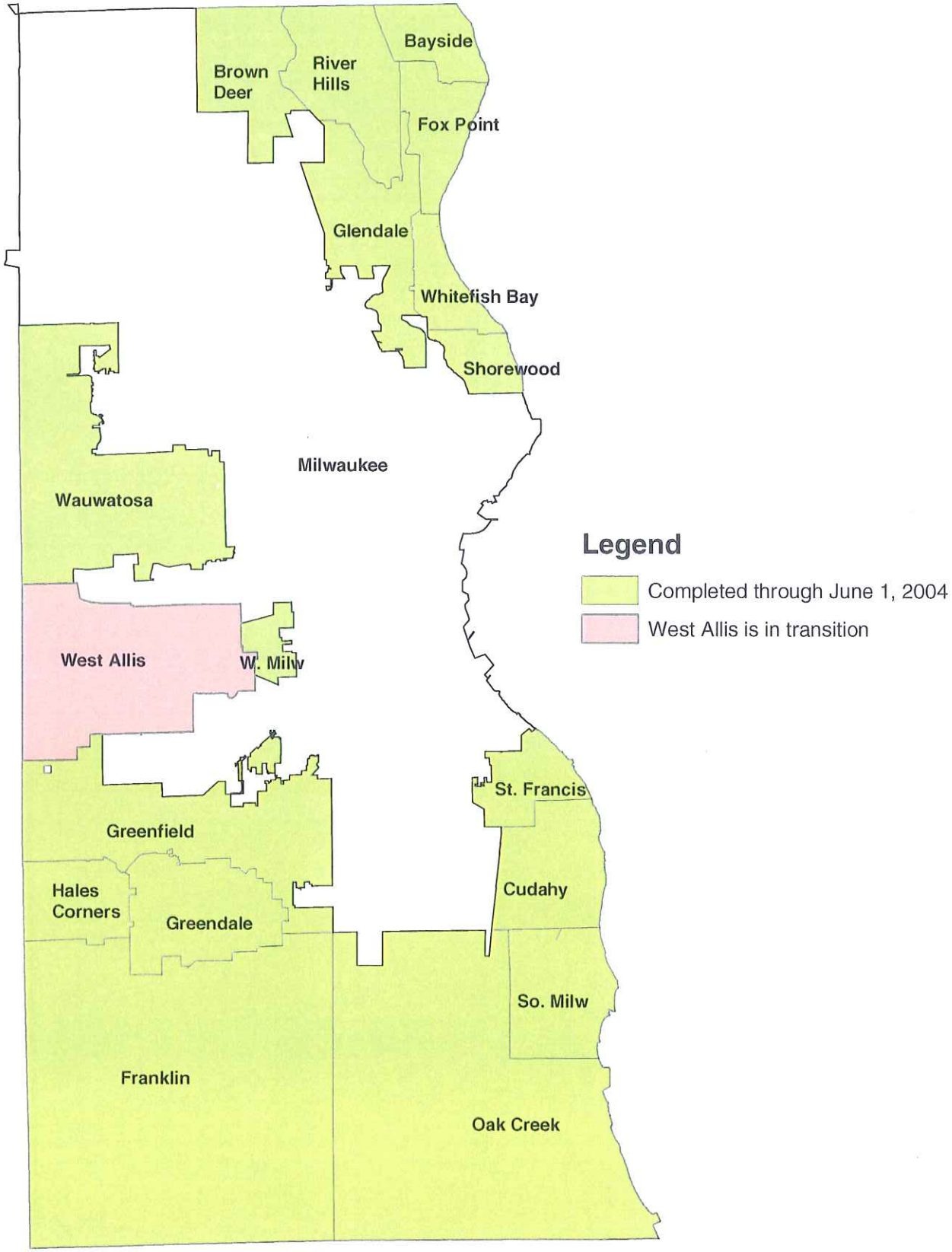
STATUS OF FLOODPLAIN MAPPING IN MILWAUKEE COUNTY AND IN MENOMONEE AND ROOT RIVER WATERSHEDS OUTSIDE MILWAUKEE COUNTY[a] SEPTEMBER 30, 2004



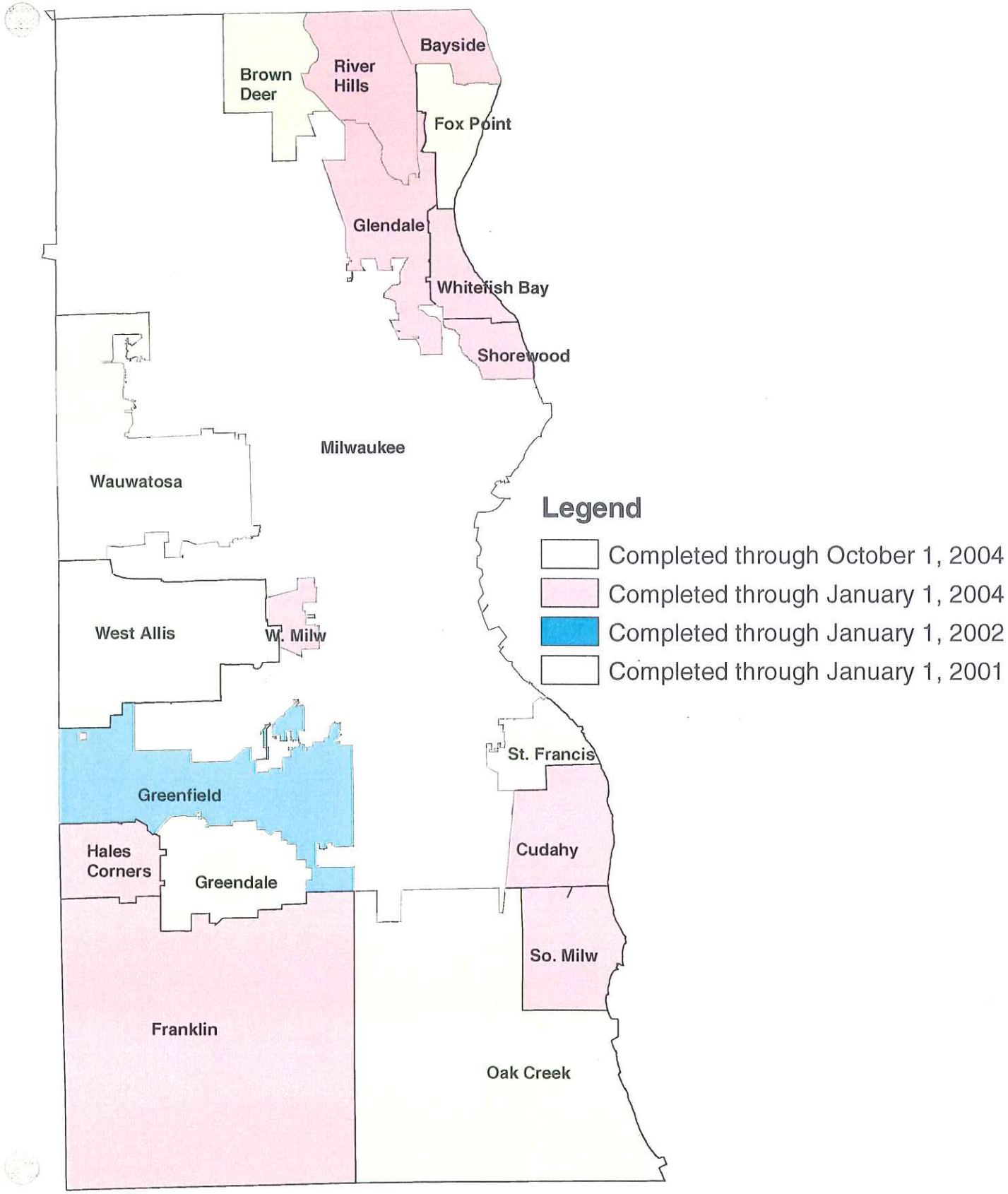
[a] *The floodplains outside Milwaukee County are being mapped under a program funded by MMSD and SEWRPC.*

Source: SEWRPC.

Milwaukee County Cadastral Status as of October 26, 2004



Milwaukee County Address Status as of October 26, 2004



STATUS OF MCAMLIS MAPPING PROJECTS BEING CARRIED OUT BY CITY OF MILWAUKEE STAFF

The City of Milwaukee recompilation project was comprised of 40 U.S. Public Land Survey one-quarter section-based maps as delineated on the accompanying status map. These cadastral maps were compiled to fit the MCAMLIS survey control system utilizing original land records and associated descriptions and documents. This work has been carried out by the staff of the City of Milwaukee, Infrastructure Service Division, Central Drafting and Records Office. This project was completed November 30, 2001.

The City of Milwaukee cadastral map transformation project (Phase 1) consisted of 93 U.S. Public Land Survey one-quarter-section-based existing City of Milwaukee maps that were refit to the MCAMLIS survey control system utilizing computer algorithms. These 93 one-quarter section maps are delineated on an accompanying status map. This work was carried out by the staff of the City of Milwaukee, Department of Administration, Information and Technology Management Division. All 93 of the map sheets have been accepted by SEWRPC staff as meeting the relevant specifications. The agreement governing this project called for work to be completed by October, 2002. This project was completed February 25, 2003. On April 28, 2003 an addendum revised the project to include an additional 6 map sheets. This addendum called for the additional work to be completed by December 31, 2003. The additional work covered by the Addendum was completed September 16, 2003.

The City of Milwaukee cadastral map transformation project (Phase 2) consisted of 24 U.S. Public Land Survey one-quarter-section-based maps as delineated on an accompanying status map. All 24 of the map sheets have been accepted as being in compliance with the specifications in this project area. The agreement governing this project called for work to be completed by June 2002. This project was completed February 14, 2002.

The City of Milwaukee cadastral map transformation project (Phase 3) also consisted of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. All 24 map sheets have been accepted as being in compliance with the specifications. The agreement governing this project called for work to be completed by June 2002. This project was completed February 14, 2002.

The City of Milwaukee cadastral map transformation project (Phase 4) also consisted of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. All 24 map sheets have been accepted as being in compliance with the specifications. The agreement governing this project called for work to be completed by December 2002. This project was completed February 15, 2003. On April 23, 2003 an addendum revised the project to include an additional 6 map sheets. This addendum called for the additional work to be completed by June 30, 2003. The additional work covered by the Addendum was completed June 18, 2003.

The City of Milwaukee cadastral map transformation project (Phase 5) also consisted of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. The agreement governing this project called for work to be completed by December 2002. This project was completed January 3, 2003. On April 25, 2003 an addendum revised the project to include an additional 6 map sheets. This addendum called for the additional work to be completed by June 30, 2003. The additional work covered by the Addendum was completed June 27, 2003.

The City of Milwaukee cadastral map transformation project (Phase 6) consisted of 26 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. The agreement governing this project called for work to be completed by December 2003. On April 30, 2003 an addendum revised the project to include an additional 6 map sheets. This addendum called for the additional work to be completed by December 31, 2003. The additional work covered by the Addendum was completed September 16, 2003.

The City of Milwaukee cadastral map transformation project (Phase 7) consisted of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. The agreement governing this project called for work to be completed by April 2004. This project was completed January 30, 2004.

The City of Milwaukee cadastral map transformation project (Phase 8) consisted of 25 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. The agreement governing this project called for work to be completed by October 2004. This project was completed September 23, 2004.

The City of Milwaukee cadastral map transformation project (Phase 9A) consists of 12 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. As of October 26, 2004, 2 maps from this project area have been submitted to SEWRPC staff for review and 1 map sheet has been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by October 2004. Due to staffing issues, the City now expects that the project will be completed by January, 2005.

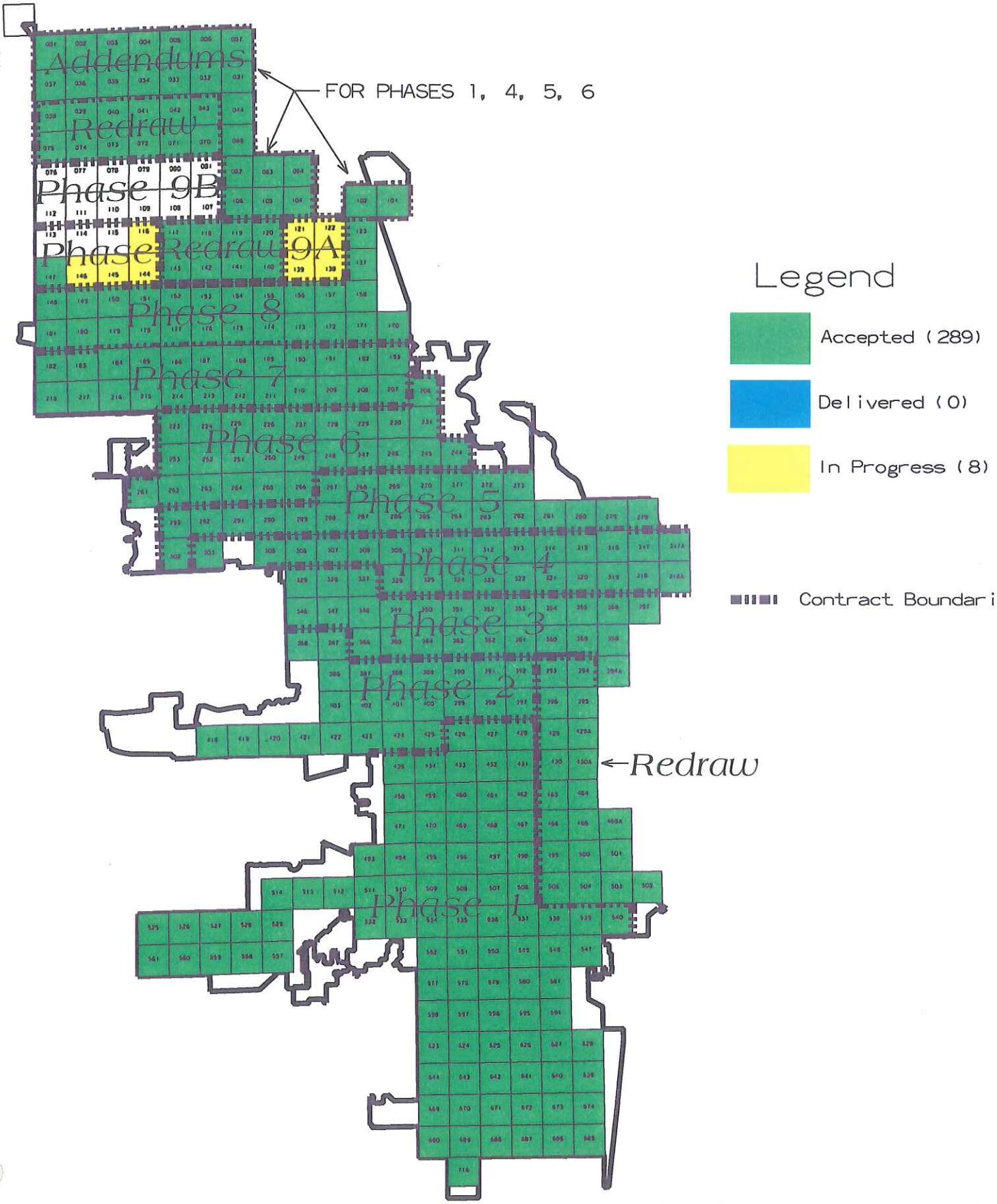
The City of Milwaukee cadastral map transformation project (Phase 9B) consists of 12 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. As of October 26, 2004, no maps from this project area have been submitted to SEWRPC staff for review and, accordingly, no map sheets have been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by October 2004. Due to staffing issues, the City now expects that the project will be completed by January, 2005.

* * *

NAO/TDP/ame
10-26-04
status-mcamlis projects at cmilw staff_v1 10-26-04.doc

#101029 v1 - Status MCAMLIS Map Rpt/CityMilw

MCAMLIS Transformation Project Progress Map



STATUS AS OF 10-26-04

PREPARED BY: CITY OF MILWAUKEE - ITMD

EXECUTED LICENSE AGREEMENTS

Number of Executed Agreements		Licensee	Effective Date
Since 1995	For 2003	**2003**	
90.	1.	North Shore Fire Department	1/13/03
91.	2	Planning & Design Institute, Inc.	2/6/03
92.	3.	Nancy M. Aten	2/12/03
93.	4.	Graef, Anhalt, Schloemer and Associates, Inc.	4/2/03
94.	5.	Sandridge Commercial Real Estate, LLC	4/25/03
95.	6.	Bloom Consultants LLC	7/11/03
96.	7.	Landscape Architects, Inc.	7/22/03
97.	8.	Jenkins Survey and Design, Inc.	7/23/03
98.	9.	Access Engineering LLC	7/30/03
99.	10.	Fifth Ward Association	12/08/03
100.	11.	West Allis-West Milwaukee School District	12/10/03
Since 1995	For 2004	**2004**	
101.	1.	The Sigma Group	01/21/02
102.	2.	T N & Associates	02/20/04
103.	3.	Hayes Engineering Company	02/23/04
104.	4.	Geocomm	03/30/04
105.	5.	J. Spear Associates, Inc.	06/16/04
106.	6.	Key Engineering Group, Ltd.	07/21/04
107.	7.	LandCraft Survey and Engineering, Inc.	08/26/04
108.	8.	The Design Office	10/06/04
109.	9.	Friebert, Finerty & St. John, S.C.	10/26/04

MCAMLIS FINANCIAL REPORT
(ADJUSTED FOR ENCUMBRANCE)

	1990 Actual	1991 Actual	1992 Actual	1993 Actual	1994 Actual	1995 Actual	1996 Actual	1997 Actual	1998 Actual	1999 Actual	2000 Actual	2001 Actual	2002 Actual	2003 Actual	9/30/2004 Actual	TOTAL
Beginning Period Reserve-January 1	0	283,340	595,922	695,124	952,054	1,990,280	1,339,649	1,415,929	1,532,289	1,943,499	2,288,015	2,130,541	2,336,378	2,748,988	3,783,878	3,783,878
Mid-Year Reserve Changes	0	0	0	0	0	0	0	0	0	0	0	0				0
Current Period Reserve	0	283,340	595,922	695,124	952,054	1,990,280	1,339,649	1,415,929	1,532,289	1,943,499	2,288,015	2,130,541	2,336,378	2,748,988	3,783,878	3,783,878
Recording Fees ($4.00 Portion)	101,886	324,983	612,592	676,093	647,355	503,342	574,328	644,508	769,820	773,078	609,683	743,977	918,012	1,178,762	573,076	9,651,495
Recording Fees ($1.00 Portion)												72,968	230,597	295,988	143,791	743,344
State Grants	0	0	0	150,000	200,000	165,000	138,500	55,300	139,226	152,270	103,895	325,997	197,979	223,055	34,136	1,885,358
1 Private Utility Contributions	312,000	312,000	312,000	312,000	312,000	0	0	0	0	0	0	0				1,560,000
2 MMSD Contribution	0	0	0	50,000	50,000	50,000	50,000	50,000	50,000	50,000	170,000	0				520,000
Annual Revenue	413,886	636,983	924,592	1,188,093	1,209,355	718,342	762,828	749,808	959,046	975,348	883,578	1,142,942	1,346,588	1,697,805	751,003	14,360,197
TOTAL FUNDS AVAILABLE	413,886	920,323	1,520,514	1,883,217	2,161,409	2,708,622	2,102,477	2,165,737	2,491,335	2,918,847	3,171,593	3,273,483	3,682,966	4,446,793	4,534,881	18,144,075
Additional Encumbrance	100,000	22,075	534,849	272,943	-900,864	112,067	308,902	367,776	361,580	386,754	586,545	737,559	577,619	375,752	466,232	4,309,789
Less Prior Year Additional Encumbrance		-100,000	-22,075	-534,849	-272,943	900,864	-112,067	-308,902	-367,776	-361,580	-386,754	-586,545	-737,559	-577,619	-375,752	-3,843,556
Legal Fees	0	350	600	0	0	0	0	0	0	0	0	0				950
Systems Consulting (UGC)	0	128,638	0	0	0	0	0	0	0	0	0	0				128,638
USPLS Remonumentation	0	41,260	0	0	0	0	0	0	0	0	0	0				41,260
Horizontal/Vertical Control Surveys	0	144,443	0	0	0	0	0	0	0	0	0	0				144,443
Aerial Photos/Mapping	21,555	17,925	292,060	1,178,794	1,340,370	356,953	490,821	576,268	556,108	608,450	842,594	787,620	1,095,708	866,757	288,420	9,320,402
Project Facilitator	8,991	73,567	21,650	14,995	0	0	0	0	0	0	0	0				119,203
Conference	0	59	1,046	319	0	0	528	0	0	0	0	0				1,953
RoD Computer Hardware/Software																0
RoD Materials Copied	0	0	0	0	6,291	797	0	0	0	0	0	0				7,088
Computer Maintenance																0
Computer/Office Supplies	0	0	0	0	0	0	26	0	0	0	0	0				26
DPW Needs Analysis																
IMSD Strategic Initiative																
Contractual Crosscharges	40	554	13	0	0	0	3	5	0	0	343	0	442	0		1,399
Charges Paid By Other Departments	0	-4,470	-2,752	-1,040	-1,724	-1,708	-1,664	-1,700	-2,116	-2,792	-1,676	-1,529	-2,232	-1,975	-1,030	-28,408
Miscellaneous									40	0	0	0				40
Annual Expenditures	30,586	402,326	312,616	1,193,069	1,344,936	356,042	489,713	574,573	554,032	605,658	841,261	786,091	1,093,918	864,782	287,390	9,736,994
TOTAL EXPS / ENCUMBRANCES	130,586	324,401	825,391	931,162	171,130	1,368,973	686,548	633,448	547,836	630,832	1,041,052	937,105	933,978	662,915	377,870	14,046,783
NET AVAIL FUNDS (END RESERVE)	283,300	595,922	695,124	952,054	1,990,280	1,339,649	1,415,929	1,532,289	1,943,499	2,288,015	2,130,541	2,336,378	2,748,988	3,783,878	4,157,011	4,097,292

1. 1994 was the final year for this revenue source.
2. $50,000 will be paid each year through 2000, and $20,000 in 2003.

Prepared by Milwaukee County
DAS-Fiscal Affairs
As of 9/30/04

COUNTY EXECUTIVE'S 2005 BUDGET

DEPT: MILWAUKEE COUNTY AUTOMATED LAND INFORMATION SYSTEM **UNIT NO.** 1923
FUND: General - 0001

OPERATING AUTHORITY & PURPOSE

Pursuant to Sections 15.105(16), 16.971, 20.505(4)(im) and 59.72 of the Wisconsin Statutes and County Board Resolution File 90-707(a), approved on November 8, 1990, the Milwaukee County Automated Land Information System (MCAMLIS) may design, develop and implement a land information system integrating property and ownership records with U.S. Public Land Survey referenced parcel-identified boundary information; prepare boundary-referenced parcel property maps suitable for producing accurate land title or survey boundary line information; and prepare maps of documented accuracy suitable for local planning.

Pursuant to Section 59.43, funding for a land information office, modernization of land records and the State of Wisconsin Land Information Program and Board is collected via a $7 surcharge on the County's existing four dollar Recording Fee. Four dollars of the additional $7 surcharge are retained locally and specifically designated for expenditures associated with the creation, maintenance, and enhancement of the Milwaukee County Automated Land Information System within guidelines established by the Wisconsin Land Information Board (WLIB). One dollar of the additional $7 surcharge is also retained locally and specifically designated for expenditures associated with initiatives to develop and maintain a computerized indexing of the County's land information records relating to housing, including the housing element of the County's land use plan under Section 66.001(2)(b) (Smart Growth law) also within guidelines established by the WLIB. (No portions of the $4 and $1 surcharges are available for general County purposes.) Two dollars of the additional $7 surcharge are forwarded to the WLIB. The County continues to retain its $4 share of the Recording Fee.

Previous Register of Deeds Recording Fees	$4
Fee for MCAMLIS	4
Fee for Land Records Modernization Initiatives	1
Fee for State Land Information Board	2
	$11

BUDGET SUMMARY

	2003 Actual	2004 Budget	2005 Budget	2004/2005 Change
Services	$ 866,757	$ 911,500	$ 953,000	$ 41,500
County Service Charges	0	1,000	1,000	0
Abatements	(1,975)	0	0	0
Total Expenditures	$ 864,782	$ 912,500	$ 954,000	$ 41,500
Encumbrances	0	0		0
Total Expenditures & Encumbrances	$ 864,782	$ 912,500	$ 954,000	$ 41,500
State Grants	$ 223,055	$ 100,000	$ 79,000	$ (21,000)
Sewer District & Utility Contributions	0	0	0	0
Recording Fee Surcharge	1,474,750	812,500	875,000	62,500
Total Revenue	$ 1,697,805	$ 912,500	$ 954,000	$ 41,500
Contribution to Reserve Account	$ 833,023	$ 0	$ 0	$ 0
Property Tax Levy	$ 0	$ 0	$ 0	$ 0

BUDGET HIGHLIGHTS

- This appropriation provides 2005 expenditure authority of $954,000 for the Automated Land Information System. Revenue of $875,000 is projected to be received from the $4 surcharge collected by the Register of Deeds earmarked for land information modernization by Section 59.72(5) of the Wisconsin Statutes. Revenue of $175,000 is projected to be collected from the $1 surcharge which is also collected by the Register of Deeds. An additional $79,000 is expected to result from grants to be awarded to the County by the Wisconsin Land Information Board (WLIB). Milwaukee County is not required to provide tax levy dollars.

- Expenditure authority of $954,000 is comprised of $717,000 to continue the development and maintenance of the automated base map and parcel-based land information system as provided for in the plan approved by the County Board and to undertake selected plan development work; $175,000 to develop and maintain a computerized indexing of the County's land information records related to housing in a manner consistent with the requirements of Section 66.001(2)(6) Wisconsin Statutes; $60,000 for surveying services provided by the Southeastern Wisconsin Regional Planning Commission (SEWRPC) in performance of its duties as the Milwaukee County Surveyor under the requirements of Section 59.635, Wisconsin Statutes; $1,000 to obtain subdivision and map survey prints from the Register of Deeds; and $1,000 for meeting and travel expenses.

- Beginning in 2005, the Architectural and Engineering (A&E) Division of the Department of Parks and Public Infrastructure will assume the project management function for MCAMLIS from the Southeastern Wisconsin Regional Planning Commission (SEWRPC). A&E will receive $206,589 in existing MCAMLIS funds for project management. This includes conceptual development of individual projects, development of project specifications, writing contracts, preparation of invoices to draw down funds as expended, payment of subcontractors, recordkeeping and general maintenance of MCAMLIS data holding. In addition, this effort will merge the County's internal GIS functions with MCAMLIS.

- $142,000 in existing MCAMLIS funds have been included in the operating budget for Org 3400 – Register of Deeds to upgrade real estate records software. This software will be financed by the $1 surcharge dedicated to land records modernization.

- In addition, $73,695 in existing MCAMLIS funds have been included in Org. Unit 3400 to support 100 percent of the salary, social security and fringe benefit costs of a Geographic Information Technician.

- In September 2004, the MCAMLIS Steering Committee approved a total appropriation of $261,787 in existing MCAMLIS funds for a regional water supply system study leading to the development of additional land and infrastructure information as well as plan recommendations. This appropriation is to be divided over three years, 2004 to 2006, in an amount of approximately $87,262 each year. SEWRPC, working in conjunction with Milwaukee County and the other six counties within the Southeastern Wisconsin Regional Planning area, will complete the water study. In September of 2002, SEWRPC adopted the *Regional Water Supply Planning Program Prospectus,* which calls for the fiscal participation of Milwaukee County in conjunction with the other six counties.

2006 BUDGET
ORG UNIT 1923 & 5080
DATE 10-28-04

By Supervisor Holloway

To amend the County Executive's 2005 Recommended Budget for Org. No. 1923 – Milwaukee County Automated Land Information System (MCAMLIS), and Org. No. 5080 - Department of Parks and Public Infrastructure – Architectural, Engineering and Environmental Services (A&E), by adding narrative language relating to MCAMLIS project management.

In the MCAMLIS narrative on page 1923 – 3, revise as follows:

- Beginning in 2005, the Architectural and Engineering (A&E) Division of the Department of Parks and Public Infrastructure will assume the project management function for MCAMLIS from the Southeastern Wisconsin Regional Planning Commission (SEWRPC). A&E will receive $206,589 in existing MCAMLIS funds for project management. This includes conceptual development of individual projects, development of project specifications, writing contracts, preparation of invoices to draw down funds as expended, payment of subcontractors, recordkeeping and general maintenance of MCAMLIS data holding. In addition, this effort will merge the County's internal GIS functions with MCAMLIS. The MCAMLIS project will be managed in accordance with Milwaukee County procurement and contracting policies and ordinances. Additionally, Corporation Counsel will review the MCAMLIS Cooperative Agreement, authorized in 1990, to assure that the authority granted to the MCAMLIS Steering Committee is consistent with Milwaukee County interests, policies and ordinances, and will recommend changes to the agreement to the Committee on Judiciary, Safety and General Services by March 1, 2005.

In the A&E narrative on page 5080 – 6, revise as follows:

- Beginning in 2005, A & E GIS staff will take over the project management function of the Milwaukee County Automated Mapping and Land Information Program (MCAMLIS) from SEWRPC. A & E will receive $206,589 for MCAMLIS project management. This includes conceptual development of individual projects, development of project specifications, writing contracts, preparation of invoices to

(1C011)

draw down funds as expended, payment of subcontractors, recordkeeping, and general maintenance of MCAMLIS data holding. In addition, this effort will merge the County's Internal GIS functions with MCAMLIS. The MCAMLIS project will be managed in accordance with Milwaukee County procurement and contracting policies and ordinances. Additionally, Corporation Counsel will review the MCAMLIS Cooperative Agreement, authorized in 1990, to assure that the authority granted to the MCAMLIS Steering Committee is consistent with Milwaukee County interests, policies and ordinances, and will recommend changes to the agreement to the Committee on Judiciary, Safety and General Services by March 1, 2005.

Addition of this language has no tax levy impact.

Org. No.	Department (or Capital Project)	Expenditure	Revenue (or Bonds)	Tax Levy
1923	MCAMLIS	$0	$0	$0
5080	DPPI – A&E	$0	$0	$0
	TOTALS:	$0	$0	$0

FINANCE AND AUDIT COMMITTEE ROLL CALL		
	AYES	NOES
Nyklewicz		
McCue	1	
Coggs-Jones		
Quindel	1	
Mayo	1	
Johnson	1	
Broderick	1	
Chair	1	
TOTALS:	6	0

Approve as amend: 6-0

DRAFT FOR REVIEW

MINUTES OF THE THIRD MEETING

Milwaukee County Automated Mapping and Land Information System
Subcommittee on Topographic Mapping

DATE: Thursday, October 19, 2004

TIME: 2:00 P.M.

PLACE: Milwaukee County - City Campus
Room 219
2711 W. Wells Street
Milwaukee, Wisconsin

Members Present

Timothy R. Bate, P.E., Chairman	Engineering Planning Manager, Milwaukee Metropolitan Sewerage District, and President, Wisconsin Section, American Society of Civil Engineers
Gregory G. High	Director, Architectural and Engineering Services, Milwaukee County Department of Parks and Public Infrastructure
William C. Shaw	Manager, Geographic Information Systems, WE Energies
Timothy J. Thur, P.E.	Chief Sewer Design Manager, Environmental Engineering Division, City of Milwaukee
Thomas J. Tym	Head, Technology Services Department, Ruekert & Mielke, Inc.
Richard S. Vraga	Liaison for Wisconsin and Illinois, U.S. Geological Survey

Members Absent

Alyssa A. Bails, AICP	GIS Division Manager, R.A. Smith & Associates, Inc.
Mr. Rick Norris, P.E.	President, Norris and Associates, Inc.

Guests and Staff Present

Robert P. Biebel	Chief Environmental Planner, SEWRPC
Thomas D. Patterson	MCAMLIS Project Manager
Kevin R. White	GIS Supervisor, Architectural and Engineering Services, Milwaukee County Department of Parks and Public Infrastructure

ROLL CALL

The third meeting of the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Subcommittee on Topographic Mapping was called to order by Chairman Bate at 2:05 p.m. Roll call was taken by circulating an attendance signature sheet and a quorum was declared present. In view of the fact that a number of new individuals were present for this meeting, Chairman Bate asked that each person present introduce himself for the benefit of other attendees.

CONSIDERATION OF THE MINUTES OF THE SECOND SUBCOMMITTEE MEETING HELD ON SEPTEMBER 2, 2004

Mr. Patterson noted that copies of the Minutes of the second meeting of the Subcommittee held on September 2, 2004, had been distributed to all members of the Subcommittee for review prior to the meeting and asked that the Committee consider those minutes.

There being no questions, comments, or corrections, on a motion by Mr. High seconded by Mr. Shaw and carried unanimously, the minutes of the meeting of September 2, 2004, were approved as published.

REVIEW OF THE SUBCOMMITTEE REPORT CONCERNING THE MCAMLIS DIGITAL TOPOGRAPHIC REPLACEMENT MAPPING PROGRAM

Mr. Patterson noted that copies of the Subcommittee Report to the MCAMLIS Steering Committee, dated September 3, 2004, had been distributed to all members of the Subcommittee for review prior to the meeting. Following a short discussion, it was the consensus of the members that the report successfully captured the salient features of the Subcommittee discussion and correctly conveyed the Subcommittee's recommendations to the Steering Committee.

Mr. Patterson reported that following the submittal of the Subcommittee's report to the MCAMLIS Steering Committee at its meeting held on September 14, 2004, the Steering Committee had considered those recommendations made by the Subcommittee of issues that, in the Subcommittee's view, required additional evaluation. More specifically these issues were:

1. Whether or not the digital point, line, and area features contained in the proposed project specifications should continue to be mapped as interpreted, symbolized, and annotated features in light of the possible incorporation of a digital orthophotography layer into the digital topographic map replacement program.

2. Whether or not the requirement in the proposed specifications that delivery of the digital map products from the contractor in Integraph/MicroStation DGN format should be continued in view of emerging computer software environments incorporating geodatabases.

3. An evaluation of the useful life of the topographic mapping such that a suitable map replacement cycle could be determined and recommended to the Steering Committee for use in formulating future MCAMLIS annual work programs.

Mr. Patterson further stated that following Steering Committee discussion of these three points, the Steering Committee had asked the Chairman to augment the membership of the Subcommittee with several additional individuals having "hands-on" experience in the use of the MCAMLIS digital topographic maps in municipal planning and engineering applications and to reconvene the Subcommittee to give additional consideration to these three issues.

REVIEW AND DISCUSSION OF THE PROPOSED SPECIFICATIONS FOR MCAMLIS DIGITAL TOPOGRAPHIC MAPPING

Mr. Patterson noted that copies of the Proposed Detailed Specifications for MCAMLIS Digital Topographic Mapping had been distributed to all members of the Subcommittee for review prior to the meeting.

[Project Manager's Note: A copy of these specifications is attached to the Minutes of the Second Meeting of the Subcommittee.]

Mr. Patterson further called the Subcommittee's attention to several plotted copies of MCAMLIS digital topographic maps provided for review at this meeting and spent several minutes reviewing the layout and content of these maps and summarized briefly some of the uses to which the maps are put, including as a particularly relevant example, the use of the topographic maps as base maps for the current MCAMLIS floodland mapping projects.

Evaluation of the Currently Specified Digital Point, Line, and Area Features

Mr. Patterson then proceeded to review the MCAMLIS digital topographic mapping specifications with the Subcommittee. Subcommittee discussion concerning the mapped point, line, and feature specifications was extensive. During that discussion several particularly germane points were made.

Mr. Tym noted that he had met with staffs of the Cities of Greenfield, Wauwatosa, and West Allis, and the Village of Brown Deer to discuss the manner in which these maps were typically used by those municipalities. Mr. Tym had summarized the results of his meetings in a table which he distributed to the Subcommittee (copy of Mr. Tym's table attached to these Minutes). Mr. Tym noted in particular that these municipalities were interested in the continued availability of such previously mapped features as pavement edges and structures and in the continued production and availability of map feature annotation (that is, the names of streets, rivers and streams, and ponded or open water features). Mr. Tym further reported that the City of West Allis staff had indicated that they would prefer to continue to work in a quarter-section oriented map environment rather than in a continuous map file organizational structure.

Mr. Patterson responded to Mr. Tym's comment concerning quarter-section map organization by noting that the existing map sheet layout elements could be easily reused with updated digital topographic mapping files and that by "cutting out" the new map content from a continuous map coverage any user could continue to produce "quarter-section" maps.

Mr. Tym further noted that all four municipalities with which he had met had made the observation that the currently available digital topographic maps are "seriously" out of date, a point with which Mr. White concurred.

Mr. Biebel stated that with respect to floodplain mapping in particular, his professional experience indicated that symbolized and annotated contour lines and hydrography features were much easier for planners and engineers to use for environmental planning and engineering purposes. Mr. Biebel also distributed a table to the Subcommittee members; this table highlighting those interpreted, symbolized, and annotated features, particularly hydrography and hypsometry, that he believed to be especially helpful for environmental engineering and planning tasks (a copy of Mr. Biebel's table is attached to these minutes). Mr. Biebel noted in particular the recent experience of Regional Planning Commission staff in using digital map data obtained from Waukesha County in which contour lines were neither symbolized

nor annotated; that is, the contour lines exist only as unsymbolized lines developed from a digital terrain model. The lack of such symbolization and annotation had made this material moderately more time consuming to use.

Mr. White and Mr. Shaw also indicated that symbolized and annotated elevation data and hydrography were important to the work of their respective organizations.

Mr. Biebel further noted that under newly emerging regulations, it would soon be necessary for local municipalities to review and possibly update stormwater discharge quantities within their municipal boundaries on an annual basis and that easy-to-use hypsometric information would become increasingly valuable in that particular regard.

Mr. Tym noted that his company had also experienced the need for additional staff efforts required by the use of more recently mapped digital map information acquired from Waukesha County for use by his company for municipal planning and engineering purposes. In response to a question from Mr. Patterson, Mr. Tym stated that, in his professional opinion, Waukesha County municipalities had erred by cutting back so severely on the use of interpreted and symbolized planimetric features in their mapping.

Mr. Vraga stated that from the perspective of the National Map program, the presence of an orthoimagery layer was deemed important and that he was pleased that the revised specification for the MCAMLIS digital topographic mapping would include such a layer. Mr. Vraga further stated that within the National Map construct, the Federal government was planning to "update" planimetric features in the National Map ideally using feature information compiled by counties and municipalities.

Mr. Patterson noted that the Regional Planning Commission under its comprehensive, areawide planning program obtains large scale, controlled, digital orthophotography every five years. Currently this photography is acquired to be compatible with maps prepared to meet National Map Accuracy standards at a scale of 1:2400, or 1 inch equals 200 feet. He further suggested that Milwaukee County could request the Commission to acquire this orthophotography for Milwaukee County at a scale of 1 inch equals 100 feet, thereby rendering it compatible with the MCAMLIS topographic and cadastral maps. The MCAMLIS Steering Committee would be responsible for the "incremental" costs associated with the scale increase under such a scenario, however.

In response to a question from Mr. Patterson, Mr. Vraga stated that, within the context of the evolving Federal mapping programs, the National Map was presumed to include all interpreted, symbolized, and annotated features previously shown as interpreted, symbolized, and annotated features on the US Geological Survey 1:24,000 map series. This would include, but not necessarily be limited to: contour lines; structures; complete hydrography; and the street and highway network.

Mr. Shaw asked Mr. Vraga about the manner in which the homeland security issue affects the importance that the Federal government places on various digital mapping features. Mr. Vraga responded that orthoimagery, hypsometry, structure outlines, and the transportation network—highway, rail, and water—were deemed to be especially important in this regard. Mr. Vraga further noted that the National Mapping Administration within the Federal government was currently exploring the feasibility of procedures whereby those elements deemed critical to homeland security, including digital orthophotography, were updated no less frequently than once every two years.

At the conclusion of an extensive discussion of this particular issue, and following a line by line review of the point, line and area features contained in the proposed specifications, the Subcommittee identified the following planimetric map features for possible removal from the specifications:

1. Recreational trail line and associated text;
2. Power, telephone and pole locations;
3. Railway signals;
4. Signs, including billboards and associated text; and
5. Miscellaneous planimetric features and associated text (these features occur rarely, are often ephemeral, and include such features as spoil piles and salt and coal storage piles).

Delivery of the MCAMLIS Digital Map Products in Intergraph/MicroStation DGN Format

The Subcommittee quickly reached consensus concerning the continued use of the Intergraph/MicroStation DGN format for delivery of MCAMLIS digital map products. In supporting this recommendation to the Steering Committee, Mr. Tym noted that, in municipal environments, the predominant use of MCAMLIS digital topographic mapping was for computer assisted drafting (CAD) applications. Because of this, Mr. Tym indicated that municipalities with which he had spoken would prefer to see the use of a CAD compatible delivery format continued.

Mr. Shaw noted that GIS softwares such as ESRI ArcInfo had the ability to read the Intergraph/ MicroStation DGN format with relative ease as did alternative CAD softwares such as AutoCAD.

Mr. Patterson noted that the choice of the DGN format had originally been made for contractor convenience and further noted that it was his observation that the DGN format continued to be a cost effective delivery format for the MCAMLIS digital map products. He speculated that based upon experience at the Regional Planning Commission, requiring delivery in alternative formats would either increase the cost of acquiring the digital map products, increase the complexity of dealing with alternative formats in a multiple use environment such as the MCAMLIS program, or both.

It was the consensus of the Subcommittee that the Intergraph/MicroStation DGN format should be retained within the MCAMLIS specifications.

Determination of a Suitable Digital Topographic Map Replacement Cycle

The Subcommittee, after considerable discussion of a suitable digital topographic map replacement cycle, agreed that these maps should not be allowed to become more than 10 years out of date. Pertinent issues raised during this discussion were as follows.

Mr. Shaw questioned whether or not it might be possible to incorporate newer material into existing digital topographic maps by obtaining updated material from sources other than aerial photography. Mr. Tym noted in this regard that the cities of Greenfield and West Allis currently record razed structures and that some of the municipalities within Milwaukee County also collect plats of survey showing the foundations of new structures as they are erected. The accuracy of the latter data, it was noted, was problematic; and importantly any incorporation of ad hoc data would lack needed uniformity.

Mr. Shaw stated his position that a cost/benefit analysis of a change cycle needed to be undertaken in order to truly answer the question of a proper map update frequency. He further stated that lacking such an analysis and understanding would mean that 5 to 10 years after completing a countywide digital topographic map replacement program, MCAMLIS Steering Committee would then again be confronted with the need to undertake another countywide digital topographic map replacement project. Mr. Shaw

stated that he believed it was quite important to identify the number of desirable years in a replacement cycle and to establish a continuous map update cycle within the MCAMLIS program.

Mr. Bate suggested that the municipalities might be willing to work cooperatively with the County whereby municipalities would "trade" municipal-wide planimetric map feature updates if the County would agree to provide regular digital orthophotography updates. Several Subcommittee members noted in this regard, however, that in order for such a program to be useful beyond the municipal level, agreement would need to be secured on a uniform planimetric feature list. Securing such an agreement could be expected to be more problematic based upon previous efforts to secure agreement on past cooperative digital mapping efforts.

FORMULATION OF THE SUBCOMMITTEE RECOMMENDATIONS TO THE MCAMLIS STEERING COMMITTEE

At the conclusion of the Subcommittee's deliberations concerning the observations and recommendations that the Subcommittee wished to present to the Steering Committee, Mr. Patterson stated that he would complete a report to the Steering Committee based upon the Subcommittee's discussion and distribute that report to the Steering Committee in time for the report's consideration at the next Steering Committee meeting scheduled for November 2, 2004.

ADJOURNMENT

There being no further business to come before the Subcommittee, on a motion by Mr. High seconded by Mr. Shaw and carried unanimously, the meeting was adjourned at 4:35 p.m.

Respectfully submitted,

Thomas D. Patterson
MCAMLIS Project Manager

Item	West Allis	Greenfield	Wauwatosa	Brown Deer
Currently updating:	Curbs & Bldgs	Curbs,bldgs,driveways,walks,sheds,retention ponds, & wooded areas	Bldgs	Bldgs (Res/Comm),parking lots,driveways,streets & sidewalks
Desired Geographic Format	1/4 section format w/o adjacent data	Seamless or Township w/o adjacent data	Seamless	Seamless
Most commonly used features	Curbs & Road edges	Curbs, driveways & walks	All	All
	Bldg outlines	Bldgs & sheds		
	Walks	Ponds		
	Poles	Wooded Areas		
Software Platform	Microstation / Intergraph	Microstation	AutoCAD	AutoCAD or .dxf
Symbology, Layers, Colors, etc.	Keep the same	Keep the same	Keep the same	Keep the same
Frequency	More often	More often	More often	
Comments	Includes razing of bldgs and CIP	Include contours in City of Milw datum	Razed bldgs moved to different layer	
	Seamless topos may be too large	MCAMLIS should be repository for all topo updates		

Mr. Tyms Table

Mr. Biebel's Table

Table 2

MILWAUKEE COUNTY TOPOGRAPHIC MAPPING ELEMENTS
1" = 100' SCALE

MICROSTATION DGN FORMAT FILES

Data Element Group/Elements	Type	Level	Color	Notes
Map Sheet Elements				
Map Border	Line	1	1	Border, Trim Lines
Map Title	Text	1	2	
Map Legend Box	Line	1	3	Map Logo
Map Legend Box Text	Text	1	4	
Graphic Scale	Line	1	5	
Graphic Scale Text	Text	1	6	
North Point	Point	1	7	
North Point Text	Text	1	8	
Map Legend Symbols	Point	1	9	
Map Legend Text	Text	1	10	
Map Index Section Lines	Line	1	11	
Map Index County and Town Lines	Line	1	13	
Map Index City Boundary Lines	Line	1	15	
Map Index Location Box	Line	1	17	
Geodetic and Geographic Reference Elements				
NGS Triangulation Station Location	Point	2	1	See Note (1)
NGS Triangulation Station Text	Text	2	2	See Note (1)
Traverse Station Location	Point	2	3	See Note (1)
Traverse Station Text	Text	2	4	See Note (1)
Photo Center Location	Point	2	5	See Note (1)
Photo Center Text	Text	2	6	See Note (1)
Bench Mark Location	Point	2	7	See Note (1)
Bench Mark Text	Text	2	8	See Note (1)
Wisconsin State Plane Coordinate Grid Intervals	Point	3	1	See Note (2)
Wisconsin State Plane Coordinate Text	Text	3	2	See Note (2)
Wisconsin State Plane Coordinate Grid Intersections	Point	3	3	See Note (1)
U. S. Public Land Survey Corner	Point	4	1	
U. S. Public Land Survey Corner Coordinates	Text	4	2	

Data Element Group/Elements	Type	Level	Color	Notes
Geodetic and Geographic Reference Elements (continued)				
U. S. Public Land Survey Monuments	Point	4	3	
U. S. Public Land Survey Monument Coordinates	Text	4	4	
U. S. Public Land Survey Section Line	Line	5	1	
Clipped Section Line Segment	Line	5	5	
U. S. Public Land Survey Section Bearing/Length	Text	5	2	
U. S. Public Land Survey Quarter-Section Line	Line	5	3	
Clipped Quarter-Section Line Segment	Line	5	7	
U. S. Public Land Survey Quarter-Section Bearing/Length	Text	5	4	
Hydrographic Elements				
Open Water Line	Line	8	1	See Note (3)
Open Water Name Text	Text	8	2	See Note (3)
Open Water Direction Of Flow	Point	8	3	
Single Width Water Line	Line	9	1	See Note (4)
Single Width Water Name Text	Text	9	2	See Note (4)
Marsh Boundary Line	Line	10	1	
Marsh Name Text	Text	10	2	
Marsh Symbol	Point	10	3	
Planimetric Elements				
Road Pavement/Curb Line	Line	11	1	
Road Name Text	Text	11	2	
Road Median/Boulevard Line	Line	11	3	
Clipped Paved Road Line Segment	Line	11	5	
Private Road Pavement/Curb Line	Line	12	1	
Unimproved Road Line	Line	13	1	
Unimproved Road Name Text	Text	13	2	
Clipped Unimproved Road Line Segment	Line	13	3	
Driveway Line (paved)	Line	14	1	
Driveway & Parking Text	Text	14	2	
Driveway (unpaved)	Line	14	3	
Parking (paved)	Line	14	5	
Parking (unpaved)	Line	14	7	
Trail Line	Line	15	1	
Trail Line Text	Text	15	2	

Data Element Group/Elements	Type	Level	Color	Notes
Planimetric Elements (continued)				
Walk Line	Line	16	1	
Walk Line Text	Text	16	2	
Fence Line	Line	17	1	
Pole and Tower Footing	Point	18	1	
Transmission Tower	Line	18	3	Multi-legged Tower
Communications Tower	Line	18	5	Other Large Towers
Power/Telephone Pole Location	Point	19	1	Standard Wood/
Light Pole Location	Point	19	3	Metal/Concrete
Railway Track Centerline	Line	20	1	
Railway Name Text	Text	20	4	
Railway Signal	Point	20	5	
Railway (abandoned)	Line	20	7	
Building Roof/Foundation Outline	Line	21	1	
Building Name Text	Text	21	2	
Ruins Foundation Outline	Line	22	1	
Ruins Name Text	Text	22	2	
Dam Line	Line	23	1	
Dam Name Text	Text	23	2	
Pier Line	Line	23	3	
Pier Name Text	Text	23	4	
Dock Wall Line	Line	23	5	
Dock Wall Name Text	Text	23	6	
Culvert (small)	Point	24	1	
Culvert Line (large)	Line	24	3	
Bridge Deck Line	Line	25	1	
Bridge Wing/Retaining Wall Line	Line	25	3	
Aviation Runway/Taxiway Line (paved)	Line	26	1	
Aviation Runway/Taxiway Name Text	Text	26	2	
Aviation Runway/Taxiway Line (unpaved)	Line	26	3	
Cemetery	Line	27	5	
Cemetery Text	Text	27	6	
Paved Slab	Line	27	7	
Paved Slab Text	Text	27	8	
Open Storage, Pile, U/C	Line	27	9	
Open Storage, Pile, U/C Text	Text	27	10	

Data Element Group/Elements	Type	Level	Color	Notes
Planimetric Elements (continued)				
Pipeline	Line	27	11	
Pipeline Text	Text	27	12	
Overhead Structure	Line	27	15	
Overhead Structure Text	Text	27	16	
Patio, Deck	Line	27	17	
Pool	Line	27	19	
Pool Text	Text	27	20	Letter "P"
Tank, Silo	Line	27	21	
Tank, Silo Text	Text	27	22	
Sign (point)	Point	27	23	
Sign Text	Text	27	24	Letter "S"
Sign Line	Line	27	25	
Substation Structure	Line	27	27	
Substation Text	Text	27	28	
Wall	Line	27	29	
Wall Text	Text	27	30	Letter "W"
Other Planimetric Features		27	33	
Other Planimetric Feature Text	Text	27	34	
Park/Recreation Area Line	Line	32	1	
Park/Recreation Area Text	Text	32	2	
Tree Location	Point	33	1	
Wooded Area Boundary Line	Line	33	3	
Hypsometric Elements				
Accentuated Contour Elevation Line	Line	29	1	
Accentuated Contour Elevation Number	Text	29	2	
Accentuated Contour Depression Line	Line	29	3	
Accentuated Contour Depression Number	Text	29	4	
Text-Clipped Accentuated Contour and Depression Line Segments	Line	29	9	
Building-Clipped Accentuated Contour and Depression Line Segments	Line	29	11	
Accentuated Approx. Contour Elevation Line	Line	29	5	
Accentuated Approx. Contour Elevation Number	Text	29	6	
Accentuated Approx. Contour Depression Line	Line	29	7	
Accentuated Approx. Contour Depression Number	Text	29	8	

Data Element Group/Elements	Type	Level	Color	Notes
Hypsometric Elements (continued)				
Unaccentuated Contour Elevation Line	Line	30	1	
Unaccentuated Contour Depression Line	Line	30	3	
Text-Clipped Unaccentuated Contour and Depression Line Segments	Line	30	9	
Building-Clipped Unaccentuated Contour and Depression Line Segments	Line	30	11	
Accentuated Approx. Contour				
Unaccentuated Approx. Contour Elevation Line	Line	30	5	
Unaccentuated Approx. Contour Depression Line	Line	30	7	
Spot Elevation Location	Point	31	1	
Spot Elevation Value Text	Text	31	2	
Water Surface Elevation Location	Point	31	3	
Water Surface Spot Elevation Value Text	Text	31	4	
U. S. Public Land Survey Corner Elevation	Text	31	6	

NOTES

Note (1): Where elements occur interior to the U. S. Public Land Survey section lines of the area being mapped.

Note (2): Where elements occur exterior to the U. S. Public Land Survey section lines of the area being mapped, and interior to the map sheet border.

Note (3): Depicting open water boundaries (greater than 5' in width) for lakes, ponds, streams, watercourses, and drainage ditches.

Note (4): Depicting water boundaries too narrow to show both edges (less than 5' width) for streams, watercourses, and drainage ditches.

MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM

SUBCOMMITTEE ON TOPOGRAPHIC MAPPING

September 3, 2004 (Revised October 28, 2004)

REPORT TO THE MCAMLIS STEERING COMMITTEE

BACKGROUND

At the MCAMLIS Steering Committee meeting held on July 20, 2004, the Committee considered a proposal from project staff to undertake a four-year Digital Topographic Replacement Mapping Program. Among the reasons cited by the staff in making this proposal was the fact that more than 80 percent of the existing digital topographic mapping for Milwaukee County was now more than ten years old. Also noted was the fact that only the two most recent digital topographic mapping projects—the St. Francis-Cudahy-South Milwaukee-General Mitchell International Airport project and the Lincoln Creek-Southbranch Creek project—together representing less than 15 percent of the County's available topographic mapping were completed using current state-of-the art photogrammetric map compilation techniques including the creation of a digital terrain model. Not unimportantly in making this proposal, the project staff had identified the necessary funds to carry out this proposed program estimated at that time to have a cost of about $2.7 million.

Following discussion of this proposal by the Committee at the July 20th meeting, the Committee Chairman was asked to create a Subcommittee to provide counsel to the Committee on the need for this program: more specifically, on the utility of the mapping; the conformance of the proposed substantive and digital format specifications to state-of-the-art practices; and the need for the program. Accordingly, the Chairman acted to create the requested Subcommittee on Topographic Mapping.

The original recommendations of the Subcommittee on Topographic Mapping were presented to the MCAMLIS Steering Committee at its meeting held on September 14, 2004. After reviewing and discussing those recommendations, the Steering Committee requested that the Chairman augment the membership of the Subcommittee to include several additional members capable of providing "hands-on" experience in the use of the MCAMLIS digital topographic mapping or capable of commenting on the general utility of digital point, vector, and area map feature information in conjunction with the use of digital orthophotography. The Steering Committee further requested that the augmented Subcommittee be reconvened to address several issues left unresolved by the first two Subcommittee meetings. More specifically, these issues were:

1. A review of the digital map feature content currently contained in the MCAMLIS digital topographic mapping specification to determine if all such features previously mapped as digital point, line, and area features continue to be needed, particularly if the Steering Committee should decide to incorporate digital orthophotography as a component of the standard MCAMLIS digital topographic mapping specifications;

2. A review of that portion of the current specifications requiring delivery of the map products in Integraph/MicroStation DGN format, particularly in view of emerging computer software operating environments that incorporate geodatabases; and

3. An evaluation of the useful life of the topographic mapping and the recommendation of a suitable digital topographic map replacement cycle for consideration in the development of future MCAMLIS annual work programs.

This report sets forth the comments, observations, and recommendations of the Subcommittee to the full Committee.

MEMBERSHIP OF THE SUBCOMMITTEE

The original membership of the Subcommittee was as follows:

Mr. Timothy R. Bate, P.E. ..... Engineering Planning Manager
Chairman — Milwaukee Metropolitan Sewerage District; and
President, Wisconsin Section,
American Society of Civil Engineers

Mr. Gregory G. High ..... Director, Architectural and Engineering Services
Department of Parks and Public Infrastructure
Milwaukee County

Mr. Rick Norris, P.E. ..... President, Norris and Associates, Inc.
Consulting Engineers

Mr. William C. Shaw ..... GIS Manager, WE Energies

Mr. Timothy J. Thur, P.E. ..... Chief Sewer Design Manager
Environmental Engineering Division
City of Milwaukee

Following the September 14, 2004 meeting of the MCAMLIS Steering Committee, the Chairman appointed the following three individuals to augment the original membership of the Subcommittee:

Ms. Alyssa A. Bails, AICP ..... GIS Division Manager, R.A. Smith & Associates, Inc.
Mr. Thomas J. Tym ..... Head, Technology Services Department, Ruekert & Mielke, Inc.
Mr. Richard S. Vraga ..... Liaison for Wisconsin and Illinois, U.S. Geological Survey

MEETINGS

The first meeting of the Subcommittee on Topographic Mapping was held on Friday, August 13, 2004, in Room 203P of the Milwaukee County Courthouse. Subcommittee members present were: Mr. Bate, Mr. High, Mr. Norris, Mr. Shaw, and Mr. Thur.

Others present were: Ms. Marcia Lindholm, Manager, Central Drafting and Records, City of Milwaukee; and Mr. Thomas D. Patterson, MCAMLIS Project Manager.

In order to provide a common background for the Subcommittee members in their discussions and deliberations, Mr. Patterson presented a short history of the MCAMLIS Program and of that Program's four major initial work efforts. These work efforts were: the completion of a previously existing effort to relocate and monument the United States Public Land Survey (USPLS) corners within Milwaukee County; the completion of a previously existing effort to provide a survey control network for Milwaukee County, utilizing the monumented USPLS

corners as stations within this network; a digital topographic mapping program utilizing the completed survey control network for locating these maps accurately to both the surface of the earth and to an appropriate map projection; and a digital real property boundary line map compilation program, these maps constructed as overlays to the digital topographic maps, and, therefore, linked both to the surface of the earth and to the chosen map projection.

In discussing these four initial work efforts, Mr. Patterson stressed the interrelated nature of these individual tasks and the importance of each to the development of a scientifically sound collection of maps and their contribution to the creation of county, municipal, and private utility digital land information systems and public works infrastructure management systems.

The Subcommittee then began, but did not complete, a review and discussion of the proposed MCAMLIS Digital Topographic Replacement Mapping Program as that program had been previously presented to the MCAMLIS Steering Committee at its meeting held on July 20, 2004.

The second meeting of the Subcommittee on Topographic Mapping was held on September 2, 2004, also in Room 203P of the Milwaukee County Courthouse. Subcommittee member present were: Mr. Bate, Mr. High, Mr. Norris, Mr. Shaw, and Mr. Thur.

Others present were: Mr. Thomas D. Patterson, MCAMLIS Project Manager; and Mr. Kevin R. White, GIS Supervisor, Architectural and Engineering Services, Department of Parks and Public Infrastructure, Milwaukee County.

The Subcommittee completed its review and discussion of the proposed MCAMLIS Digital Topographic Replacement Mapping Program memorandum. The Subcommittee also reviewed and discussed the proposed specifications for digital topographic mapping that have provided the basis for the two most recently completed MCAMLIS digital topographic mapping projects. These specifications were intended by project staff for use in the previously identified MCAMLIS Digital Topographic Replacement Mapping Program.

The third meeting of the Subcommittee on Topographic Mapping was held on October 19, 2004, in Room 219 of the Milwaukee County – City Campus Building. Subcommittee members present were Mr. Bate, Mr. High, Mr. Shaw, Mr. Thur, Mr. Tym, and Mr. Vraga. Subcommittee members absent were: Ms. Bails and Mr. Norris.

Others present were: Mr. Robert P. Biebel, Chief Environmental Planner, SEWRPC; Mr. Thomas D. Patterson, MCAMLIS Project Manager; and Mr. Kevin R. White, GIS Supervisor, Architectural and Engineering Services Department of Parks and Public Infrastructure – Milwaukee County.

The Subcommittee evaluated the three specific items referred to it by the MCAMLIS Steering Committee as noted above, specifically in light of the manner in which the digital topographic maps were typically used in municipal engineering and planning and in environmental engineering and planning applications.

COMMENTS AND RECOMMENDATIONS

On the basis of the review and discussion of the above identified material and after deliberating on the intent and perceived utility of the proposed digital topographic replacement mapping program, this Subcommittee offers the following comments, observations, and recommendations to the MCAMLIS Steering Committee.

The Utility of the Presently Available MCAMLIS Digital Topographic Mapping Products for their Intended Audience

- The Subcommittee believes that the presently available MCAMLIS digital topographic mapping products do have value for their intended audience, although they did express concern that, with the audience being rather broad, this utility was difficult for the Subcommittee to completely assess.

- The Subcommittee believes that the more current the information contained on the digital topographic maps, the more value the maps have for their intended audience.

- The Subcommittee recommends that the Steering Committee consider the inclusion of six-inch pixel, color, digital orthophotography as one of the products to be obtained from the MCAMLIS digital topographic mapping projects, noting in particular that the digital terrain model needed to orthorectify the photographic images is already included in the MCAMLIS digital topographic mapping specifications. The Subcommittee believes that the inclusion of a digital orthophotography product as a part of the total digital topographic mapping preparation would increase the utility of any remapping efforts.

- The Subcommittee recommends that the digital map feature content currently contained in the specifications be reviewed to determine if all features currently mapped as digital vectors are needed, particularly if the Steering Committee should decide to incorporate digital orthophotography as a component of the product specifications. The Subcommittee further recommends that the Steering Committee consider appointing an additional Subcommittee or working group to provide guidance to the Steering Committee with respect to those map features which should be represented as digital line work and those features for which the digital orthophotography can be substituted.

    - At the third meeting of the Subcommittee, members reviewed the currently specified digital map feature content. Upon completion of this review and following extensive discussion concerning the importance of the various mapped features for specific uses and applications, the Subcommittee identified the following features for possible removal from the specifications:

        1. Recreational trail lines and associated text;
        2. Power, telephone and light pole locations;
        3. Railway signals;
        4. Signs – formerly billboards – and associated text;
        5. "Miscellaneous" special planimetric features and associated text. These features occur rarely, are often ephemeral, and include such features as spoil piles, and salt and coal storage piles.

The Conformance of the Substantive Map Feature Specifications, the Digital Map File Structure Specifications, and the Digital Operating Environment Specifications to State-of-the-Art Practices

- The Subcommittee believes that the current map accuracy specifications meet all needs for the preparation of the MCAMLIS digital mapping products and recommends that the use of these map accuracy specifications be continued.

- The Subcommittee recommends that the current U.S. Public Land Survey one-quarter section "map sheet" focused delivery of the digital topographic mapping contained in the current specifications be revised to provide for delivery of the digital topographic mapping as a "seamless map" product. The Subcommittee further recommends that all current requirements relating to the preparation of "map sheets" and the delivery of "hard copy" maps be deleted from the current specifications.

- The Subcommittee recommends that that portion of the current specifications requiring delivery of the map products in Integraph/MicroStation DGN format be reviewed, particularly in view of emerging computer software operating environments incorporating geodatabases. The Subcommittee further recommends that this review also carefully consider the translatability to other digital environments of whatever digital operating environment specifications are eventually settled upon by the Steering Committee. The Subcommittee recommends that the Steering Committee consider appointing an additional Subcommittee or working group to provide guidance to the Steering Committee with respect to adopting an alternative operating environment for inclusion in the specifications.

    - At the third meeting of the Subcommittee, members agreed that the use of the Intergraph/MicroStation DGN format for the delivery of the MCAMLIS digital topographic maps continued to be warranted. This recommendation was made after consideration of the fact that the MCAMLIS digital topographic maps are used in both GIS and CAD (Computer Aided Drafting) applications. Intergraph/-MicroStation DGN format can be translated into common alternative software formats used in each of these two environments in relatively straight-forward and simple manners.

The Need for a Replacement Digital Topographic Mapping Program

- The Subcommittee recommends that the MCAMLIS Steering Committee undertake a Digital Topographic Mapping Replacement Program.

- The Subcommittee further recommends that the Steering Committee evaluate the useful life of the topographic mapping and adopt a suitable map replacement cycle for future annual work programs.

    - At the third meeting of the Subcommittee, members were again unable to reach consensus concerning a useful life cycle for the topographic mapping; other than to agree that such a life cycle lies in the range between 4 to 10 years. This means that most, if not all, Milwaukee County topographic maps now warrant replacement.

- Finally, the Subcommittee recommends that a digital topographic map replacement program be undertaken now utilizing the existing MCAMLIS specifications with the minor aforereferenced recommended amendments.

MILWAUKEE COUNTY
AUTOMATED MAPPING AND
LAND INFORMATION SYSTEM

c/o Southeastern Wisconsin
Regional Planning Commission
W239 N1812 Rockwood Drive
PO Box 1607
Waukesha, Wisconsin 53187-1607

MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: Thomas D. Patterson, MCAMLIS Project Manager

DATE: July 7, 2004 (Revised October 28, 2004)

SUBJECT: **Proposed MCAMLIS Replacement Digital Topographic Mapping Program**

Introduction

Replacement of the older existing digital topographic mapping in Milwaukee County has been discussed by the MCAMLIS Steering Committee on numerous occasions over the past several years. Indeed, such a replacement mapping program was recommended in the MCAMLIS Program Strategic Assessment document adopted by the Steering Committee at its meeting held on October 8, 2002, and again in the update to that Strategic Assessment document adopted by the Steering Committee at its meeting held on June 10, 2003. The major impediment to undertaking such a replacement program has been the inability to secure a sustained stream of funding sufficient to carry out the program over a relatively short period of time. The discovery at the end of 2003 of an amount in excess of $3 million in previously unreported MCAMLIS Program reserve funds now makes the initiation of a replacement digital topographic mapping program feasible. Accordingly, a proposal for a four year program for the replacement of the existing MCAMLIS digital topographic mapping with an estimated cost of about $2.7 million was presented to the Steering Committee for consideration at its meeting held on July 20, 2004.

At its July 20 meeting, the Steering Committee deferred action on the proposal requesting instead that the Chairman appoint a Subcommittee on Topographic Mapping to consider, and to make recommendations back to the Steering Committee on, three major concerns of Steering Committee members relating to the specifications proposed to be used for the MCAMLIS Replacement Digital Topographic Mapping Program. More specifically, these concerns were:

1. the utility of the presently available MCAMLIS digital topography mapping (that is, is the current mapping being used, and if so, how is it being used);

2. the conformance of the proposed substantive and digital format specifications to state-of-the art practices; and

3. the need for a digital topographic map replacement program.

At the MCAMLIS Steering Committee meeting held on September 14, 2004, the Subcommittee presented a series of recommendations[1] to the Steering Committee concerning the proposed program including a recommendation that a replacement digital topographic mapping program should be undertaken; however, the Subcommittee further reported that it had been unable to fully resolve several issues, which it believed

[1] *These recommendations are set forth in the Subcommittee's "Report to the MCAMLIS Steering Committee," dated September 3, 2004.*

to be important, concerning the proposed specifications and the replacement digital topographic mapping program. These issues were:

1. Whether or not the digital point, line, and area features contained in the proposed project specifications should continue to be mapped as interpreted, symbolized, and annotated features in light of the possible incorporation of a digital orthophotography layer into the digital topographic map replacement program.

2. Whether or not the requirement in the proposed specifications that delivery of the digital map products from the contractor in Integraph/MicroStation DGN format should be continued in view of emerging computer software environments incorporating geodatabases.

3. The determination of the useful life of the topographic mapping such that a suitable map replacement cycle could be determined and recommended to the Steering Committee for use in formulating future MCAMLIS annual work programs.

The Subcommittee recommended that the Steering Committee consider appointing an additional Subcommittee or work group to review these issues. Accordingly, the Steering Committee requested the Chairman to augment the membership of the Subcommittee with additional members having "hand-on" experience with the use of the MCAMLIS digital topographic mapping and to ask the Subcommittee to reconvene to determine if these remaining issues might be resolved by further deliberation by the expanded Subcommittee membership. This expanded Subcommittee met again on October 19, 2004, to discuss these three issues and to formulate a response to the Steering Committee.[2]

This memorandum has been revised to reflect the changes to the proposed digital topographic mapping specifications recommended by the Subcommittee to the Steering Committee.

The Need for Replacement of Existing Topographic Mapping

The ages of existing digital topographic mapping are shown on the map attached hereto as Map 1. Approximately 82 percent of the existing digital, topographic mapping is now between ten years and 20 years old. All digital topographic mapping carried out since 1992 has been acquired under the auspices of the MCAMLIS Program and was digitally compiled directly from three-dimensional stereoscopic models constructed from aerial photography acquired specifically for that purpose. All digital topographic mapping prepared prior to 1992 was prepared using older technology and was converted to digital format either by board digitizing or by scanning of hard copy maps, rendering these digital maps moderately more cumbersome to use, but in no way compromising the accuracy of the features portrayed on the maps. Increasingly, comments from users of these maps indicate that the continually advancing age of the mapping adversely affects the map's utility for users; not only from the standpoint that newer development is absent from these maps, but also from the standpoint that more recent demolitions, public works reconstructions, and private redevelopment projects are not shown.

Proposed Digital Topographic Mapping Replacement Program

A proposed program for the replacement of all MCAMLIS digital topographic mapping within Milwaukee County is illustrated on the map attached hereto as Map 2. The proposal includes replacement of the two most recently completed digital topographic mapping projects carried out by the MCAMLIS Steering Committee. These two projects: the 1999 Cudahy – St. Francis – South Milwaukee – General Mitchell International Airport Project and the 2002 Lincoln Creek project are relatively recent and were both carried out using still current "state-of-the-art" map compilation techniques including the preparation of a digital terrain model; however, the recommendation of the project staff is to also remap these two

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[2] *These recommendations are set forth in the Subcommittee's "Report to the MCAMLIS Steering Committee," dated September 3, 2004, as revised October 28, 2004.*

areas[3]. Additionally, it should be noted in this regard that staff of the City of St. Francis has recently contacted the MCAMLIS Project Manager about the possibility of acquiring updated digital topographic mapping that would include the completed State Trunk Highway 794 and its immediately adjacent areas.

The proposed program would replace all existing digital topographic mapping over a four year period as identified on Map 2. All revisions to the MCAMLIS digital topographic mapping specifications recommended by the MCAMLIS Subcommittee on Topographic Mapping—with the exception of a six-inch pixel, color digital orthophotography layer and with the exception of the recommended deletion of certain specified planimetric map features.[4]—have been incorporated into a revised cost estimate table which follows. MCAMLIS project staff consultation with a photogrammetric engineer has established that the elimination of the identified planimetric map features provides, at best, a marginal opportunity for cost reduction; an amount of no more than $100 per square mile—perhaps on the order of $24,000 for the entire project—and certainly less than one percent of the total estimated project cost. Accordingly, MCAMLIS project staff recommends that these features continue to be shown on the MCAMLIS digital topographic maps, if for no other reason than for historical continuity. The incremental cost of preparing six-inch pixel, color digital orthophotography is shown separately in the cost estimates table.

The estimated cost to carry out this replacement digital topographic mapping program is approximately $2,965,050, which amount would be spread over a four year period as set forth in the table below.

PROPOSED MCAMLIS REPLACEMENT DIGITAL TOPOGRAPHIC MAPPING PROGRAM

Cost Estimates

	Replacement Digital Topographic Mapping	Incremental Cost for Six-Inch Pixel Color Digital Orthophotography
First Year (53.75 square miles)	$ 660,495	$ 38,970
Second Year (56.50 square miles)	705,545	40,965
Third Year (61.75 Square miles)	738,335	44,770
Fourth Year (70.00 square miles)	860,675	50,750
Total	$2,965,050	$175,455

[3] *At the conclusion of a four year replacement mapping program, the mapping in the 1999 project area will be eight or nine years old and nearing the end of its "useful life" as determined by the MCAMLIS Subcommittee on Topographic Mapping. The mapping in the 2002 project area constitutes a relatively small area—8.5 square miles—and would be about six or seven years old by the conclusion of the remapping program.*

[4] *These features are: recreation trail lines and associated text; power, telephone, and light pole locations; railway signals; signs—including billboards—and associated text; and "miscellaneous" special planimetric features and associated text (these features occur rarely, are often ephemeral, and include such features as spoil piles and salt and coal storage piles).*

Assumptions:

- Elimination of the quarter section map sheet format (digital map sheet layouts can be provided from another source).
- Elimination of the delivery of mylar quarter section map sheets.
- Elimination of the U.S. Public Land Survey corner and related geodetic survey information (this information can be provided from another source).
- Digital delivery of all products on a tile basis (no overlap) consisting of a tile schema of no less than 10,000 map grid feet N/S by 10,000 map grid feet E/W.
- Average cost for replacement digital topographic mapping will be about $12,570/square mile:
- Average cost for replacement digital topographic mapping in the 1999 and 2002 replacement mapping project areas will be about $10,240/square mile;
- Average cost for new six-inch pixel, color digital orthophotography will be about $725/square mile:
  - $440/square mile for aerial photography and related services;
  - $600/square mile for ground control, paneling, and related services;
  - $5,330/square mile for the completion of new digital terrain models and the generation of two foot interval contours (NMAS at a map scale of 1:1200) and related services;
  - $3,000/square mile for the update and revision of previously completed digital terrain models, and the generation of new two foot internal contours (NMAS at a map scale of 1:1200) and related services;
  - $5,775/square mile for interpreting and symbolizing planimetric and hypsometric map feature detail and related services;
  - $725/square mile for the preparation of new six-inch pixel, color digital orthophotography in conjunction with the replacement digital topographic mapping;
  - $425/square mile for quality control and digital file structure review.
- Cost estimates are based upon 2004 labor rates, equipment charges, and material costs, and upon the assumption that the entire project would be administered as a single contract. Entering into a contract or contracts after 2004 may result in an increase in these estimated costs. Undertaking this project with multiple contracts negotiated on a year-by-year basis may also result in increases in these estimated costs.

The cost of this program is proposed to be funded through the use of the available surplus funds estimated to total about $3,784,000 as of December 31, 2003, or by the use of a portion of the surplus funds in combination with future retained fee receipts allocated from future MCAMLIS yearly operating budgets as may be necessary to complete the work in a timely fashion.

Recommendations

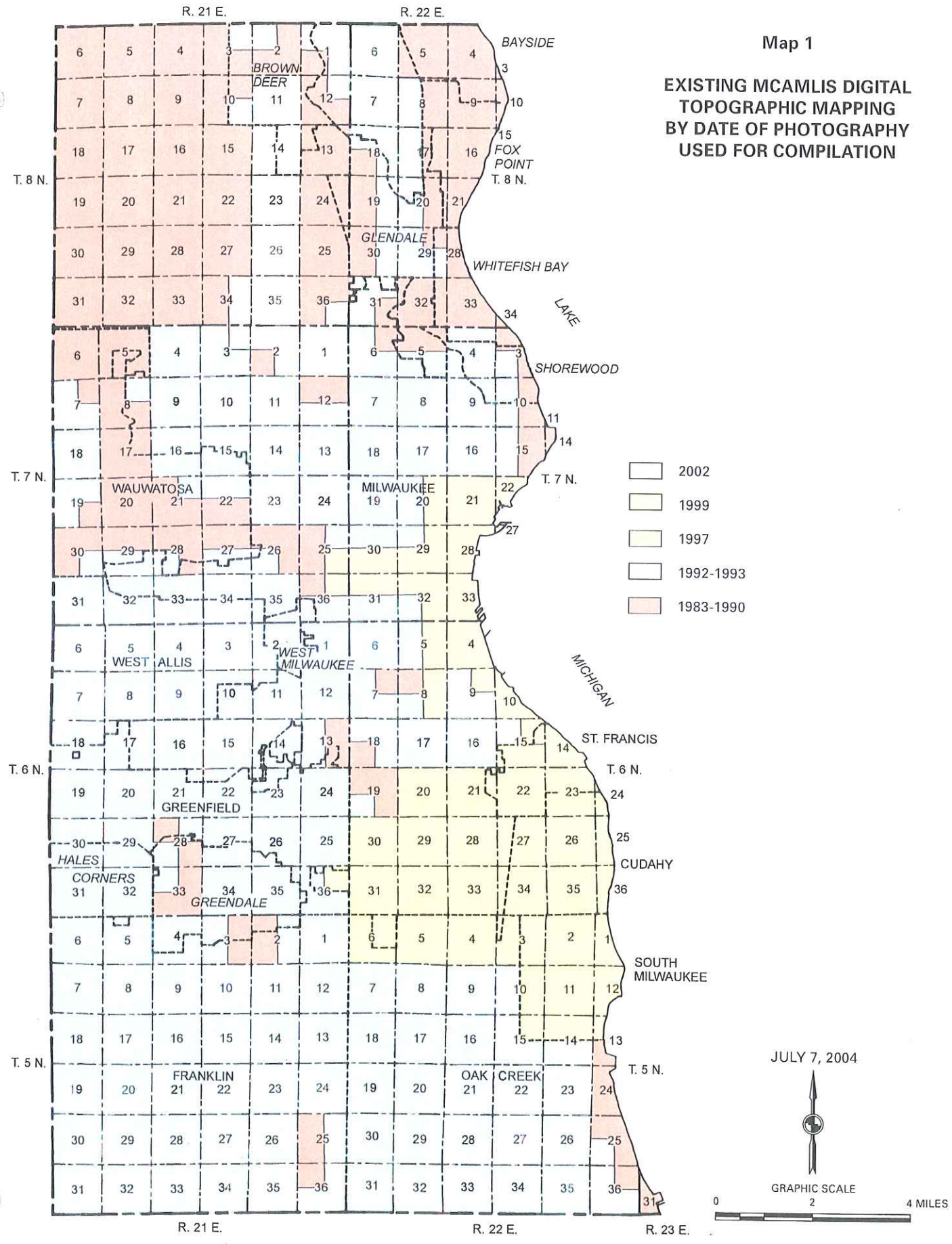
Project staff recommends that the Steering Committee undertake a four year program leading to the preparation of replacement digital topographic mapping as set forth in the above table and as delineated on Map 2. It is also recommended that the MCAMLIS Steering Committee enter into a sole source agreement, or agreements, with the Southeastern Wisconsin Regional Planning Commission to acquire the subject replacement digital topographic mapping over a four year period. The Regional Planning Commission will in turn subcontract with a qualified photogrammetric engineer judged to be capable of completing the desired mapping to the MCAMLIS digital topographic mapping specifications and standards as revised based upon the recommendations of the MCAMLIS Subcommittee on Topographic Mapping. It is further recommended that the program be funded using a combination of surplus funds and

yearly operating budget amounts as determined on a yearly basis. Finally, it is recommended that this program begin immediately using aerial photography acquired by AeroMetric, Inc., for the two northern most townships in Milwaukee County during the Spring of 2004. This photography, acquired by AeroMetric, Inc., was designed for producing digital two foot contour interval topographic base maps to MCAMLIS specifications and standards.

* * *

Map 1

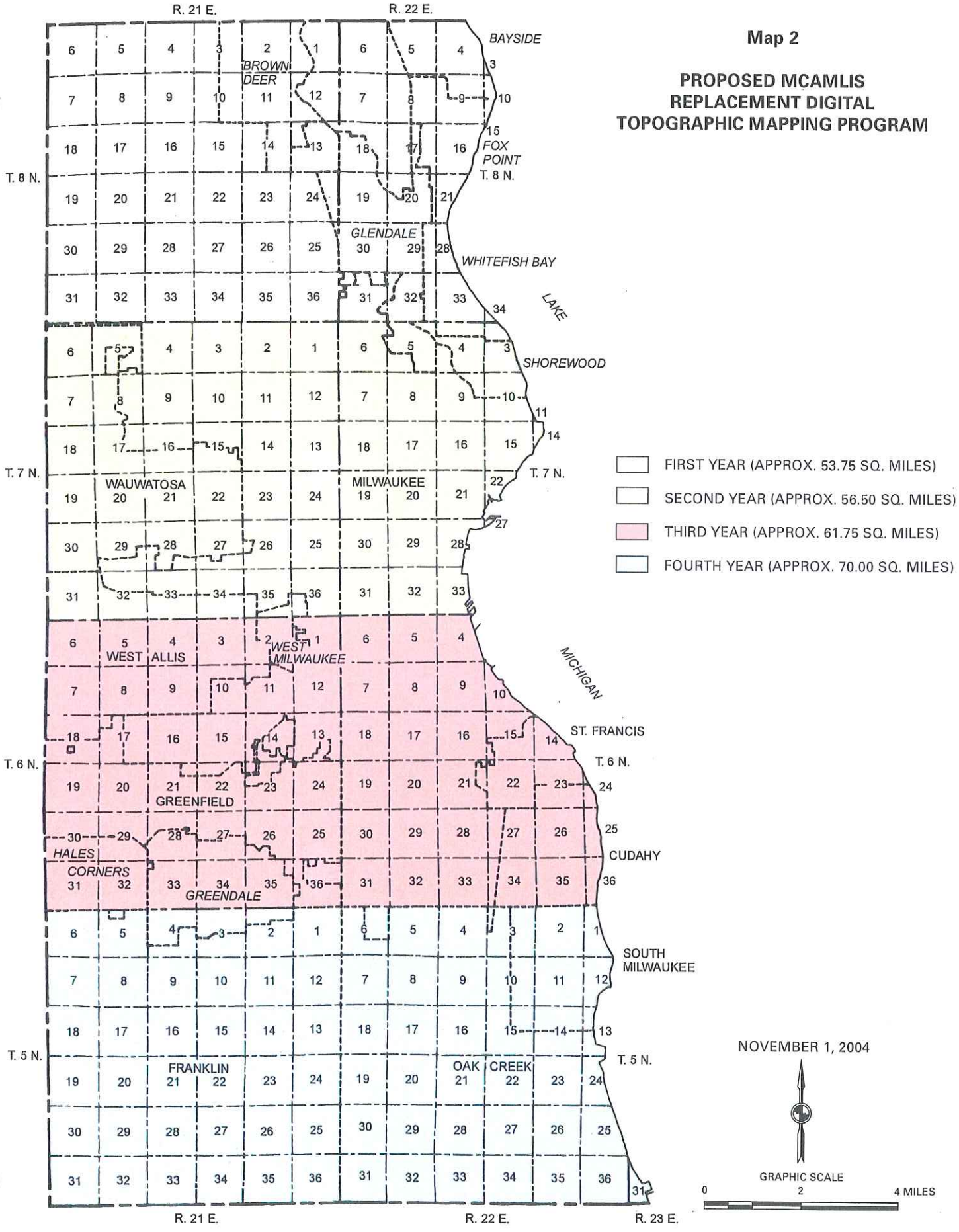
EXISTING MCAMLIS DIGITAL TOPOGRAPHIC MAPPING BY DATE OF PHOTOGRAPHY USED FOR COMPILATION



Source: MCAMLIS Project Manager.

Map 2

PROPOSED MCAMLIS REPLACEMENT DIGITAL TOPOGRAPHIC MAPPING PROGRAM



Source: MCAMLIS Project Manager.

Milwaukee County Assessment & Database Design Project:

Final Presentation

MCAMLIS Committee Meeting
November 2, 2004

presented by
Peter Thum, President
Scott Stocking, System Analyst

GeoAnalytics

Agenda

- Project Purpose
- Geodatabase Design Process and Products
- Key Recommendations
  - Technical
  - Organizational
  - Migration Strategy
    - Scheduling/Budget

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Project Purpose

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Overall Goal of the Project

Develop a set specifications and strategies that may be used to develop seamless countywide cadastral, street centerline and street address Geodatabases

and…

Define a supporting organizational and technical framework within which the County can effectively maintain, manage, and use this new environment.

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Project Objectives

- Provide rich, complete and comprehensive GIS data content to end users;
- Enhance the future development of traditional GIS as well as other spatially-enabled business applications;
- Position for better integration and interoperability between non-GIS and GIS County information systems;
- Provide for flexibility, extensibility, and scalability to support internal departments, external partners, and their varied business functions.

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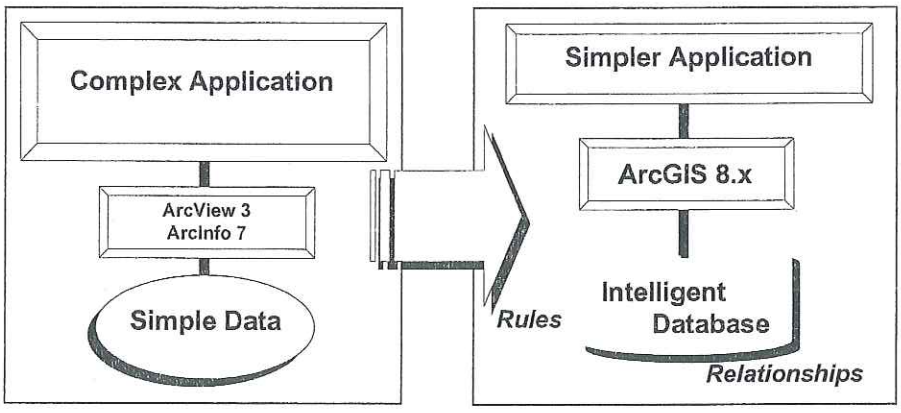
Project Objectives



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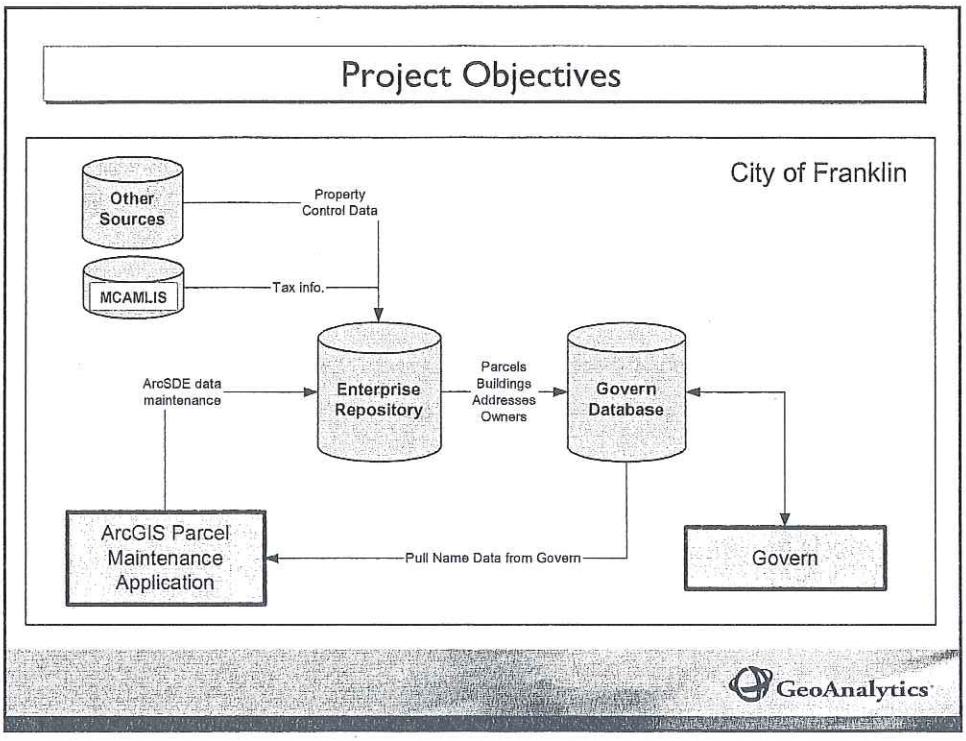
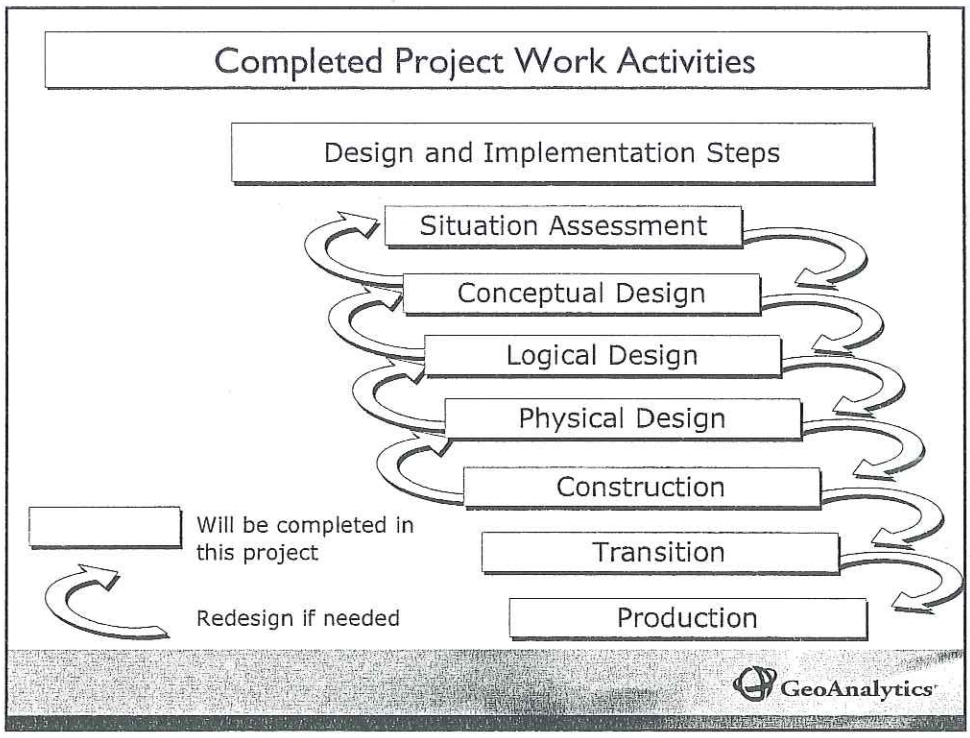

Project Objectives
City of Franklin
Other Sources
Property Control Data
MCAMLIS
Tax info.
ArcSDE data maintenance
Enterprise Repository
Parcels
Buildings
Addresses
Owners
Govern Database
ArcGIS Parcel Maintenance Application
Pull Name Data from Govern
Govern
GeoAnalytics


Completed Project Work Activities
Design and Implementation Steps
Situation Assessment
Conceptual Design
Logical Design
Physical Design
Construction
Transition
Production
Will be completed in this project
Redesign if needed
GeoAnalytics

Assessment – Key Findings

- Limited, current use of GIS data by County departments
  - Yet, significant interest throughout County to use GIS to improve decision-making and operational efficiency
- Need for process improvement, especially in the ROD office and in terms of coordination with municipal partners
- Need for more integration between MCAMLIS-funded mapping specialist function and ROD office operations and products
- Compatibility challenges between County and municipal partners due to different GIS database designs

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Assessment – Key Findings

- Quality of GIS data can be improved with respect to completeness and currency
  - Gain wider acceptance and use by County departments and regional partners
- Need for stronger operational intergovernmental relations in terms of GIS data creation, maintenance, and use
- More County participation in countywide GIS operations and governance

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Geodatabase Design Process

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Geodatabase Design Process

- Reviewed existing and future data requirements – with the County and regional partners
- Developed database designs that are simple to meet today's needs, but can be expanded as user requirements grow
  - Developed prototype Geodatabases
  - Solicited external partner review and comment
- Provided staff guidance on improving Geodatabase quality and maintenance processes

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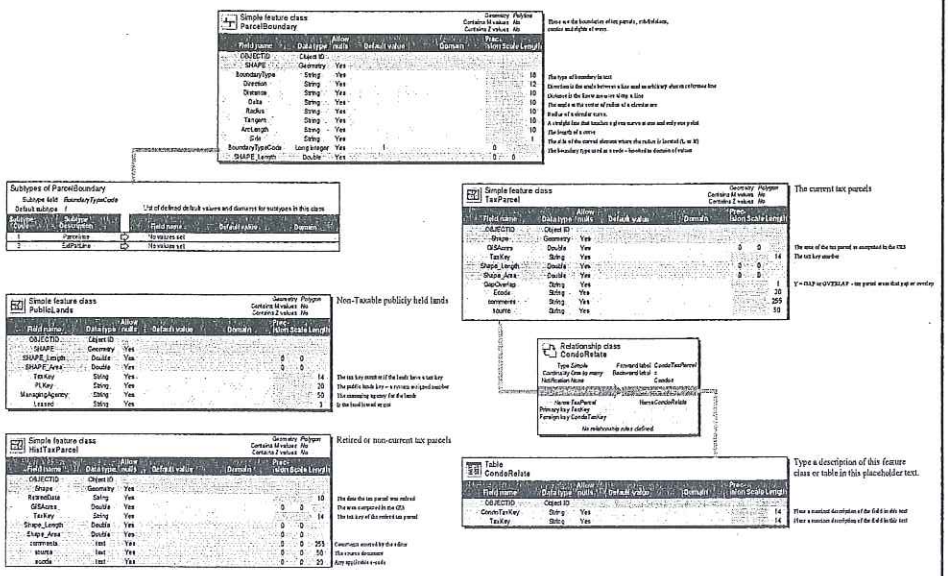
Geodatabase Design Products



Example Geodatabase Design Decisions

- Provided for logical grouping of cadastral, street centerline, and address GIS data into Geodatabase feature sets and classes
  - Included all cartographic features currently stored in ArcInfo coverage format
- Developed topology rules to enforce data integrity during future maintenance
- Provided for routing support in street centerline data set (City of Milwaukee reqs)
- Support for condo parcels (1 to many)

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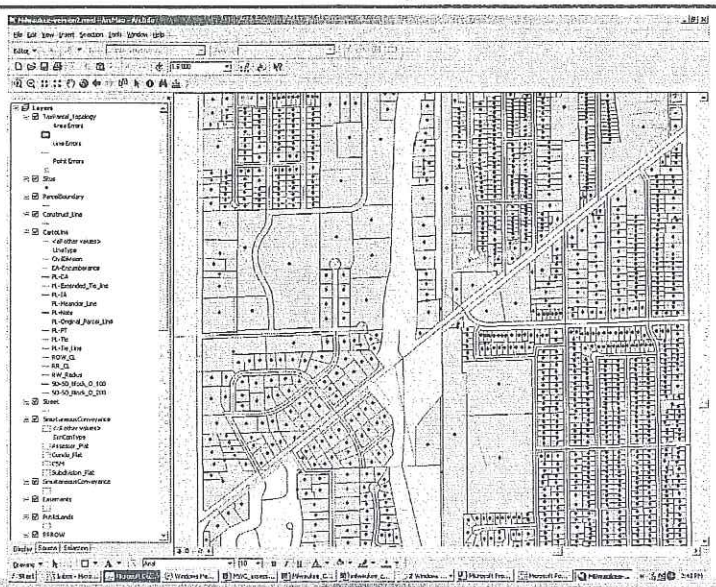
Geodatabase Design Products



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Key Recommendations

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Key Recommendations - Technical

- Create more formal data repository using ESRI ArcSDE to facilitate GIS data maintenance and publication
- Leverage County ArcIMS license to increase general access to all GIS data by providing web-based display, query, and reporting
- Develop operational agreements between County and regional partners to define data producer and consumer arrangements
- Provide automated tools to allow rapid map production, and to assist data maintenance work flows

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Key Recommendations - Organizational

- Formalize County directed GIS Program Governance Structure
- Formalize GIS Operational Structure
- Strengthen staff support
- Develop data sharing arrangements with the ROD and other regional partners to facilitate data maintenance/quality efforts

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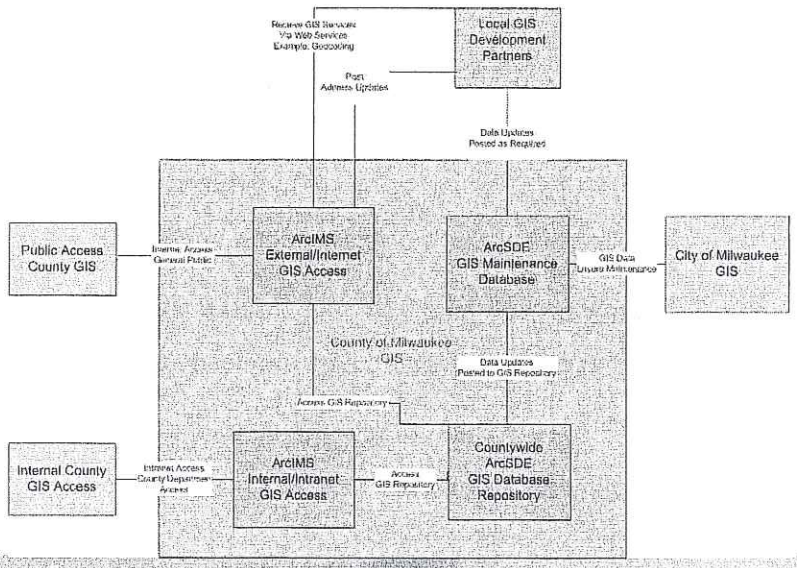
Key Recommendations - Organizational



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Key Recommendations – System Migration

- Incorporate provisions to insure data quality as the GIS layers are moved into the new data model
- County manage but outsource the data migration process
- Convert County GIS data to the Geodatabase model first to allow for the shorting out of City and County roles and responsibilities

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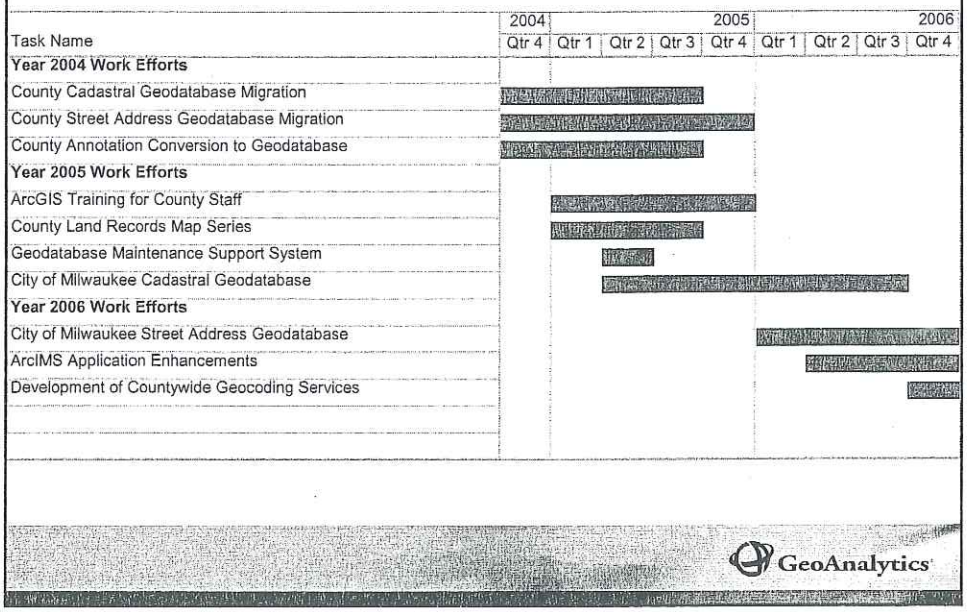
Migration Scheduling/Budget

- Identified staffing requirements required to support the data migration effort and advance the GIS to a true enterprise system
- Provided a systematic method to provide the most efficient migration of existing and new data layers
- Identified the resources needed from both a budgetary and staffing requirements necessary to complete the work

GeoAnalytics

Migration Scheduling



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Activity	Quarter	Cost Range	
FY2004 IMPLEMENTATION ACTIVITIES:		Low	High
County Cadastral Geodatabase Migration	Q4/2004 Q3/2005	$148,000	$231,000
County Street Address Geodatabase Migration	Q4/2004Q4/2005	$57,500	$95,000
County Annotation Conversion to Geodatabase	Q4/2004 Q3/2005	$10,000	$20,000
FY2004 TOTAL:		**$215,500**	**$346,000**
FY2005 IMPLEMENTATION ACTIVITIES:		Low	High
ArcGIS Training for County Staff	Q1 - Q4	$5,000	$10,000
County Land Records Map Series	Q1 - Q3	$13,500	$18,500
Geodatabase Maintenance Support System	Q2 - Q3	$30,500	$52,500
City of Milwaukee Cadastral Conversion to Geodatabase	Q2/2005Q3/2006	$93,500	$125,500
FY2005 TOTAL:		**$142,500**	**$206,500**
FY2006 IMPLEMENTATION ACTIVITIES:		Low	High
City of Milwaukee Street Address Conversion to Geodatabase	Q1 - Q4	$55,000	$88,000
ArcIMS Application Enhancements	Q2 - Q4	$8,000	$12,000
Development of Countywide Geocoding Services	Q4	$8,000	$12,000
FY2006 TOTAL:		**$71,000**	**$112,000**
TOTAL 2004-2006:		**$429,000**	**$664,500**

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